

**MAY**  
**(MAY-JUNE)**  
**1946**

# **CHEMICAL PREVIEW**

## **NEW**

- ★ PROCESSES
- ★ MATERIALS
- ★ MACHINERY
- ★ PRODUCTS
- ★ APPLICATIONS



Latest developments in chemical  
process manufacturing...for engi-  
neers, chemists and executives.

NBP

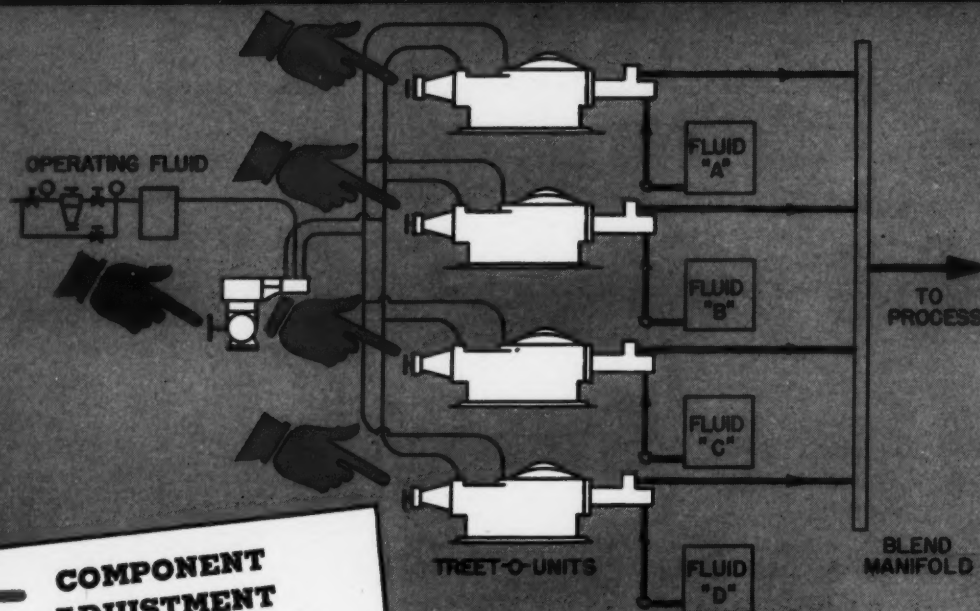
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CCA

Corrosion resistant kettles process  
linseed oil without discoloration and  
resist effects of prolonged heating

PROPORTIONEERS AUTOMATIC BLENDING

## Completely Adjustable Without Process Interruption

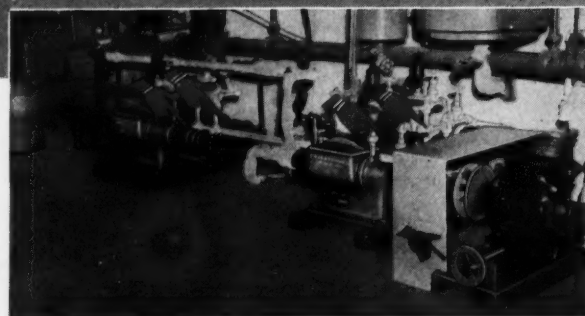


### COMPONENT ADJUSTMENT

Without interrupting process  
... the Blend percentage of any component  
can be varied by a simple adjustment on  
the Treet-O-Unit handling that component.

### TOTAL BLEND ADJUSTMENT

Without interrupting process  
... the Total Blend Delivery can be in-  
creased or decreased by a single control,  
without affecting the blend percentages of  
the individual components.



%PROPORTIONEERS% "Streamline Processing" ... in plants from coast to coast ... answers the growing need for increased production, reduced operating costs and improved quality. Engineered to meet the special process requirements of any specific plant, %Proportioneers% Equipment offers exact formula control over a complete range of flow. %Proportioneers% production line-processing gives maximum flexibility, accuracy and end product uniformity.

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## "That's Interesting"

### Starch Sponge Has Many Potential Uses

Northern Regional Research Laboratory has been experimenting with starch sponge with the objective of developing practical uses for expanding the utilization of starches from domestic plants. The most promising use for dry starch sponge which is tasteless, but easily digested is in the manufacture of certain food specialties. Advantage can be taken of its crispness to impart crunchiness to chocolate candies and crackerlike wafers. A new type of confection has been made by saturating and coating bars of dry starch sponge with melted sweet chocolate and allowing them to cool. These bars remain firm on hot days. (From report of Bureau of Agricultural & Industrial Chemistry — U. S. Dept. of Agriculture, Washington, D. C.)

### They Appear to be Nutritious

Calavo pears are rich in vitamins and minerals having nine and fourteen respectively of these vital properties.

### Book Pages Almost Turn Themselves

A new book paper originated by a British firm has an unusual property. The pages repel each other and pop up fanwise when pressure on the top page is released to facilitate turning. The paper is thirty percent lighter and thinner than Oxford India. (Data — Calco Chemical Division — American Cyanamid Co. — New York.)

### Aluminum & Concrete Houses

Aluminum and concrete houses that can be built and ready for occupancy within a week will be available in the near future. (Reynolds Metals Co.)

### Poor Donald Will Still Have to Duck

A statement of the Fish & Wildlife Service indicates tighter duck and goose hunting regulations in 1946. The statement says in part — "hunters killed more ducks and geese during the 1945 hunting season than were produced on the breeding grounds. Last fall's continental waterfowl population was estimated at 123,000,000 young birds. This year the situation may be expected to be even more serious." (The Pathfinder)

### Lengthening the Shelf Life of Bacon

The use of antioxidants lengthens the time before bacon becomes rancid according to a recently published technical paper. The process is based on the newly discovered principle that rancidity is caused by the formation of peroxide on the surface of the meat. Antioxidants such as the following successfully retard the development of these peroxides: nordihydroguaiaric acid (NDGA), d-isoascorbyl palmitate, soybean lecithin, mixed tocopherols, and gossypol. (U. S. Chemical News)

(Continued on next page)

For more information on product at left, specify CP A4307  
... see information request blank between pages 2-3.



# Check Below For Product Information

MAY-JUNE, 1946

EVERY PRODUCT DESCRIBED IN THIS ISSUE IS LISTED ON THIS SHEET. Check items that interest you, fill in your name and address on reverse side and mail to publisher. Information comes to you direct, without obligation.

✓ Key	Product	✓ Key	Product	✓ Key	Product	✓ Key	Product
<input type="checkbox"/>	A4307 Proportioning Pumps	<input type="checkbox"/>	A4373 Brazing Flux	<input type="checkbox"/>	A4433 Three Way Valves	<input type="checkbox"/>	A4504 Pressure Regulators
<input type="checkbox"/>	A4308 Processing Equipment	<input type="checkbox"/>	A4374 Monomethylamine	<input type="checkbox"/>	A4434 Stainless-clad Steel	<input type="checkbox"/>	A4505 Stainless Steel Floats
<input type="checkbox"/>	A4309 Steel Thermometer Wells	<input type="checkbox"/>	A4375 Aluminum Tubing	<input type="checkbox"/>	A4435 Dust Collectors	<input type="checkbox"/>	A4506 Instruments
<input type="checkbox"/>	A4310 Lift Trucks	<input type="checkbox"/>	A4376a Cold Padding Glue	<input type="checkbox"/>	A4436 Textile Resin Accelerator	<input type="checkbox"/>	A4507 Midget Impingers
<input type="checkbox"/>	A4311 Mixers	<input type="checkbox"/>	A4376b Label Paste	<input type="checkbox"/>	A4437 Bottle Washing Compound	<input type="checkbox"/>	A4508 Vacuum Pumps
<input type="checkbox"/>	A4312 Insulating Method	<input type="checkbox"/>	A4377 Resins	<input type="checkbox"/>	A4438 Floor Surfacers	<input type="checkbox"/>	A4509 Spray Nozzles
<input type="checkbox"/>	A4313 Corrosion Resistant Alloys	<input type="checkbox"/>	A4378 Insecticide Concentrates	<input type="checkbox"/>	A4439 Beryllium Oxide	<input type="checkbox"/>	A4510 Glass Tanks
<input type="checkbox"/>	A4314 pH Control Systems	<input type="checkbox"/>	A4379 Protective Coatings	<input type="checkbox"/>	A4440 Adhesives	<input type="checkbox"/>	A4511 Actuators
<input type="checkbox"/>	A4315 Swivel Joints	<input type="checkbox"/>	A4380 Continuous Conveyor System	<input type="checkbox"/>	A4441 Mechanical Insect Control	<input type="checkbox"/>	A4512 Thermometers
<input type="checkbox"/>	A4316 Fluospar Filtration	<input type="checkbox"/>	A4381a Lead-Tin Alloy Plating Man-	<input type="checkbox"/>	A4442 Steam Meters	<input type="checkbox"/>	A4513 Gas Masks
<input type="checkbox"/>	A4317 Prefabricated Conduits	<input type="checkbox"/>	ual	<input type="checkbox"/>	A4443 High Vacuum Gauges	<input type="checkbox"/>	A4514 Close Control Rheostats
<input type="checkbox"/>	A4318 Rotating Water Joint	<input type="checkbox"/>	A4381b Zinc Fluoborate Manual	<input type="checkbox"/>	A4444 Flow Meters	<input type="checkbox"/>	A4515 Ovens
<input type="checkbox"/>	A4319 Pillow Blocks	<input type="checkbox"/>	A4381c Copper Fluoborate Manual	<input type="checkbox"/>	A4445 Oxygen Indicator	<input type="checkbox"/>	A4516 Thermometers
<input type="checkbox"/>	A4320 Acid-Handling Pumps	<input type="checkbox"/>	A4381d Metal Fluoborates Bulletin	<input type="checkbox"/>	A4446 Flow Rate Indicator	<input type="checkbox"/>	A4517 Gauges & Thermometers
<input type="checkbox"/>	A4321 Instrument Maintenance	<input type="checkbox"/>	A4382 Isopropylamine	<input type="checkbox"/>	A4447 Pressure Gauges	<input type="checkbox"/>	A4518 Rotameters
<input type="checkbox"/>	A4322 Pumps	<input type="checkbox"/>	A4383 Cleaners	<input type="checkbox"/>	A4448 Laboratory Glassware	<input type="checkbox"/>	A4519 Pressure & Level Controls
<input type="checkbox"/>	A4323 Pressure Sealed Gaskets	<input type="checkbox"/>	A4384 Protective Coatings	<input type="checkbox"/>	A4449 Thermometers	<input type="checkbox"/>	A4520 Relays
<input type="checkbox"/>	A4324 Slurry Pumps	<input type="checkbox"/>	A4385a Carbonic Gas	<input type="checkbox"/>	A4450 Viscosimeter	<input type="checkbox"/>	A4521 Thermometers
<input type="checkbox"/>	A4325 Silicone De-foamers	<input type="checkbox"/>	A4385b Dry Ice	<input type="checkbox"/>	A4451 Thermometers	<input type="checkbox"/>	A4522 Spray Nozzles
<input type="checkbox"/>	A4326 Gathering Line Valve	<input type="checkbox"/>	A4386 Portable Conveyors	<input type="checkbox"/>	A4452 Power Units	<input type="checkbox"/>	A4523 Humidity Controls
<input type="checkbox"/>	A4327 Mixers and Agitators	<input type="checkbox"/>	A4387 Fiberglass Mat Reinforce-	<input type="checkbox"/>	A4453 Tachometers	<input type="checkbox"/>	A4524 Motor Controls
<input type="checkbox"/>	A4328 Strainers	<input type="checkbox"/>	ments	<input type="checkbox"/>	A4454 Immersion Heaters	<input type="checkbox"/>	A4525 Steam Traps
<input type="checkbox"/>	A4329 pH Indicators	<input type="checkbox"/>	A4388 Plastic Lead Seal	<input type="checkbox"/>	A4455 Electrolytic Analyzers	<input type="checkbox"/>	A4526 Check Valves
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<input type="checkbox"/>	A4331 Lift Check Valve	<input type="checkbox"/>	A4390 Geon Polyvinyl Materials	<input type="checkbox"/>	Controls	<input type="checkbox"/>	A4528 Flow Control
<input type="checkbox"/>	A4332 Ultraviolet Data	<input type="checkbox"/>	A4391 Permanite	<input type="checkbox"/>	A4457 Liquid Level Controls	<input type="checkbox"/>	A4529 Waterproof Coating
<input type="checkbox"/>	A4333 Ring Gaskets	<input type="checkbox"/>	A4392 Ethyl Silicate	<input type="checkbox"/>	A4458 Recorders	<input type="checkbox"/>	A4530 Non-electric Magnets
<input type="checkbox"/>	A4334 Filter Bases	<input type="checkbox"/>	A4393 DDT Products	<input type="checkbox"/>	A4459 Laboratory Furnaces	<input type="checkbox"/>	A4531 Processing Equipment
<input type="checkbox"/>	A4335 Dust Collectors	<input type="checkbox"/>	A4394 Insulating Cement	<input type="checkbox"/>	A4460 Gas Mixing Device	<input type="checkbox"/>	A4532 Butt Welded Joints
<input type="checkbox"/>	A4336 pH Control	<input type="checkbox"/>	A4395 Polystyrene Powder	<input type="checkbox"/>	A4461 Cam-Lever Switch	<input type="checkbox"/>	A4533 Dryers
<input type="checkbox"/>	A4337 Paper Bags Case History,	<input type="checkbox"/>	A4396 High Vacuum Pumps	<input type="checkbox"/>	A4462 Sanitary Level Controls	<input type="checkbox"/>	A4534 Lighting Equipment
<input type="checkbox"/>	No. 5	<input type="checkbox"/>	A4397 Industrial Trucks	<input type="checkbox"/>	A4463 pH Equipment	<input type="checkbox"/>	A4535 Photoelectric Colorimeter
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<input type="checkbox"/>	A4342 Carton Stitchers	<input type="checkbox"/>	A4402 Furfuryl Alcohol	<input type="checkbox"/>	A4468 Refillable Draftman's Pencils	<input type="checkbox"/>	A4540 Thermocouple Tubes
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<input type="checkbox"/>	A4346 Bulk Material Handling	<input type="checkbox"/>	A4406 Industrial Plate Glass	<input type="checkbox"/>	A4472 Timers	<input type="checkbox"/>	A4544 Plugs & Receptacles
<input type="checkbox"/>	A4347 Overhead Handling Equip-	<input type="checkbox"/>	A4407 Adhesives	<input type="checkbox"/>	A4473 Industrial Ovens	<input type="checkbox"/>	A4545 Mixers
<input type="checkbox"/>	ment	<input type="checkbox"/>	A4408 Canned Hydrogen	<input type="checkbox"/>	A4474 Portable Stroboscope	<input type="checkbox"/>	A4546 Glossometer
<input type="checkbox"/>	A4348 Vacuum Pumps	<input type="checkbox"/>	A4409 Encyclopedia of Hydrocar-	<input type="checkbox"/>	A4475 Laboratory Furniture	<input type="checkbox"/>	A4547 Flow Meters
<input type="checkbox"/>	A4349 Industrial Trucks	<input type="checkbox"/>	bon Compounds	<input type="checkbox"/>	A4476 Liquidometer	<input type="checkbox"/>	A4548 Steam Traps
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<input type="checkbox"/>	A4353 Vertical Centrifugal Pumps	<input type="checkbox"/>	A4413 Compound Rubber Lattices	<input type="checkbox"/>	A4480 Alloy Fabrication	<input type="checkbox"/>	A4552 Steam-Jet Ejectors
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<input type="checkbox"/>	A4362 Electric Hoists	<input type="checkbox"/>	A4422 Pure Oxide Tubes	<input type="checkbox"/>	A4489 Pyrocon	<input type="checkbox"/>	A4560 Book "Soap in Industry"
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<input type="checkbox"/>	A4371 "Micromet"	<input type="checkbox"/>	A4431 Silicone-Glass-Laminates	<input type="checkbox"/>	A4498 Liquid Level Gages	<input type="checkbox"/>	A4569 Homogenizers
<input type="checkbox"/>	A4372 Lacquer Resin	<input type="checkbox"/>	A4432 Steam Conduit	<input type="checkbox"/>	A4499 Abraser	<input type="checkbox"/>	A4570 Pumps
				<input type="checkbox"/>	A4500 Fork Trucks	<input type="checkbox"/>	A4571 Light Weight Pipe
				<input type="checkbox"/>	A4501 Relays	<input type="checkbox"/>	A4572 Exchangers & Condensers
				<input type="checkbox"/>	A4502 Surface Pyrometers		
				<input type="checkbox"/>	A4503 Sifters		

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<input type="checkbox"/>	A4575 Vacuum Pumps	<input type="checkbox"/>	A4626 Gears	<input type="checkbox"/>	A4681 Ventilation Equipment	<input type="checkbox"/>	A4734 Pyrometers
<input type="checkbox"/>	A4576 Valves	<input type="checkbox"/>	A4627 Heat Transfer Equipment	<input type="checkbox"/>	A4682 Immersion Heaters	<input type="checkbox"/>	A4735 Electric Heaters
<input type="checkbox"/>	A4577 Steam Traps	<input type="checkbox"/>	A4628 Safety Relief Valves	<input type="checkbox"/>	A4683 Welding Data	<input type="checkbox"/>	A4736a Vacuum Pumps
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<input type="checkbox"/>	A4585 Photocopy Machines	<input type="checkbox"/>	A4636 "Handling Carbonic Gas"	<input type="checkbox"/>	A4690 Hand Winch	<input type="checkbox"/>	A4742 Tube Cleaners
<input type="checkbox"/>	A4586 Corrosion-Resistant Masonry	<input type="checkbox"/>	A4637 "Pulsefeeders"	<input type="checkbox"/>	A4691 Vacuum Bottle Fillers	<input type="checkbox"/>	A4743 T Ring Packing
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<input type="checkbox"/>	A4589 Fastenings	<input type="checkbox"/>	A4639b Catalog of Engineering Data	<input type="checkbox"/>	A4694 Pumps	<input type="checkbox"/>	A4746 Line Blinds
<input type="checkbox"/>	A4590 Safety Clothing	<input type="checkbox"/>	A4640 Steel & Alloy Equipment	<input type="checkbox"/>	A4695 Wooden Tanks	<input type="checkbox"/>	A4747 Aluminum Rust-proof Paint
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<input type="checkbox"/>	A4594 Centrifugals	<input type="checkbox"/>	A4644 Glass Filter Media	<input type="checkbox"/>	A4699 Vibrating Screens	<input type="checkbox"/>	A4751 Diaphragm Valves
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<input type="checkbox"/>	A4597 Grinding Equipment Data	<input type="checkbox"/>	A4647 Steam Traps	<input type="checkbox"/>	A4702 Dust Collectors	<input type="checkbox"/>	A4754 Centrifugal Air Separators
<input type="checkbox"/>	A4598 Lifting Machines	<input type="checkbox"/>	A4648 Conveyor Trolley	<input type="checkbox"/>	A4703 Magnetic Disc Brake	<input type="checkbox"/>	A4755 Speed Reducers
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<input type="checkbox"/>	A4601 Metal Tubing	<input type="checkbox"/>	A4651 Portable Conveyors	<input type="checkbox"/>	A4706a Heat Transfer Equipment	<input type="checkbox"/>	A4758 Hydrizing Furnaces
<input type="checkbox"/>	A4602 Cotton Fabric Processing Steamer	<input type="checkbox"/>	A4652 Infrared Units	<input type="checkbox"/>	A4707 Pressure Vessel	<input type="checkbox"/>	A4759 Proportioning Pumps
<input type="checkbox"/>	A4603 Dehydration Unit	<input type="checkbox"/>	A4653 Laboratory Spray Dryer	<input type="checkbox"/>	A4708 Storage Bins	<input type="checkbox"/>	A4760 Scales
<input type="checkbox"/>	A4604 De-ironizing Unit	<input type="checkbox"/>	A4654 Dielectric Heaters	<input type="checkbox"/>	A4709 Rotary Pumps	<input type="checkbox"/>	A4761 Dia-ball Transmissions
<input type="checkbox"/>	A4605 Rotary Vacuum Filters	<input type="checkbox"/>	A4655 Oven — paint brush process	<input type="checkbox"/>	A4708 Gate Valves	<input type="checkbox"/>	A4762 Carbide Dies
<input type="checkbox"/>	A4606 Water Treatment Book	<input type="checkbox"/>	A4656 Lighting Fixtures	<input type="checkbox"/>	A4710 Hand Tractor	<input type="checkbox"/>	A4763 Apron Feeder
<input type="checkbox"/>	A4607 Shut-off Valves	<input type="checkbox"/>	A4657 Dryers	<input type="checkbox"/>	A4711 Refrigerant Gas Detector	<input type="checkbox"/>	A4764 Lighting Fixtures
<input type="checkbox"/>	A4608 Demineralizers	<input type="checkbox"/>	A4658 Fastenings	<input type="checkbox"/>	A4712 Metallic Packings	<input type="checkbox"/>	A4765 Fabricated Wire Products
<input type="checkbox"/>	A4609 Neoprene Gloves	<input type="checkbox"/>	A4659 Dial Scale	<input type="checkbox"/>	A4713a Scales	<input type="checkbox"/>	A4766 "Dispersite"
<input type="checkbox"/>	A4610 Micrometers	<input type="checkbox"/>	A4660 Steam Cleaner	<input type="checkbox"/>	A4713b Name Plates	<input type="checkbox"/>	A4767 Plastic Safety Clothing
<input type="checkbox"/>	A4611 Mechanical Packings	<input type="checkbox"/>	A4661 Silica Ware Trays	<input type="checkbox"/>	A4714 Nickel Alloy Kettles	<input type="checkbox"/>	A4768 Corrosion-resistant Paint
<input type="checkbox"/>	A4612 Pentolyn A & H	<input type="checkbox"/>	A4662 Pumps	<input type="checkbox"/>	A4715 Bag Liners	<input type="checkbox"/>	A4769 Synthetic Rubber Gloves
<input type="checkbox"/>	A4613 Processing Equipment	<input type="checkbox"/>	A4663 Removable Labels	<input type="checkbox"/>	A4716 Floor Reinforcement	<input type="checkbox"/>	A4770 Humidifier
<input type="checkbox"/>	A4614 Laboratory Equipment Catalog	<input type="checkbox"/>	A4664 Fire Extinguishing Equipment	<input type="checkbox"/>	A4717 Filtration Equipment	<input type="checkbox"/>	A4771 Can Washers
<input type="checkbox"/>	A4615 Vibrating Screens	<input type="checkbox"/>	A4665 Sewer Cleaning Machine	<input type="checkbox"/>	A4718 Diaphragm Pumps	<input type="checkbox"/>	A4772 Metal Hose
<input type="checkbox"/>	A4616 Pump Bulletin	<input type="checkbox"/>	A4666 Pneumatic Conveyors	<input type="checkbox"/>	A4719 Glove Guard	<input type="checkbox"/>	A4773 Agitators
<input type="checkbox"/>	A4617 Feeders & Vibrators	<input type="checkbox"/>	A4667 Pallets, Skids & Lift Boxes	<input type="checkbox"/>	A4720 Air Compressors	<input type="checkbox"/>	A4774 Air Relief Valves
<input type="checkbox"/>	A4618 Guide to Pump Selection	<input type="checkbox"/>	A4668 Equipment Connections	<input type="checkbox"/>	A4721 Dust Collectors	<input type="checkbox"/>	A4775 Steam Traps
<input type="checkbox"/>	A4619a Non-return Valve Catalog	<input type="checkbox"/>	A4669 Roller Chains Drives	<input type="checkbox"/>	A4722 Plastic Aprons	<input type="checkbox"/>	A4776 Fire Extinguishers
<input type="checkbox"/>	A4619b Blow-off Valve Catalog	<input type="checkbox"/>	A4670 Coating System	<input type="checkbox"/>	A4723 Corrosion-resistance Facings	<input type="checkbox"/>	A4777 Water Heaters
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<input type="checkbox"/>	A4620 Crane Cab Coolers	<input type="checkbox"/>	A4672 Battery Paste Mixer	<input type="checkbox"/>	A4725 Air Cleaners	<input type="checkbox"/>	A4779 Hydraulic Pumps
<input type="checkbox"/>	A4621 Plastics Data	<input type="checkbox"/>	A4673 Motors	<input type="checkbox"/>	A4726 Packer-Weighers	<input type="checkbox"/>	A4780 Adjustable Speed Drives
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		<input type="checkbox"/>	A4676 Flexible Couplings	<input type="checkbox"/>	A4729 Stainless-Clad Steel	<input type="checkbox"/>	A4783 Spout Type Separators
		<input type="checkbox"/>	A4677 Conveyor Pulley	<input type="checkbox"/>	A4730 Condensate Return	<input type="checkbox"/>	A4784 Floor Patch
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Your Name ..... Your Title .....  
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 Your Street Address .....  
 Your City ..... Zone ..... State .....

Fill in and mail this form to **CHEMICAL PREVIEW, 737 N. Michigan Ave., Chicago 11, Illinois**

## "That's Inter"

### Paperboard from

A common paperboard is used in Palestine from cotton and orange peels, banana trees. Another innovation has been the use of pulp for handwheels on U.S. was so successful that many are indicated. Colored where some thousand control points different piping systems and Cyanamid Co., Calco Chemical (York.)

## Baking Piping Co

### Process

The extensive studies of the Standards on steel pipes materials showed that phenolic coatings were practically unobtainable in a wide range of application of such coatings process fields are the miles manufacturing companies the (Bakelite Review)

## Dehydrating Trays W

### Frames

Dehydrating and freezing the aluminum frame offer the light weight, easy handling, hand conduction of heat and cold, lessing time. Their non-corrosion is specially welcome in food applications.

## Wrapping the V

### Wax Paper

America is wrapped up in wax. Wax is required every year to protect bread, cereals, pastries, fruits, etc. In a strip one foot wide, paper could circle the earth. Production requires over 110,000 tons of wax. (From Esso Oilways)

## Paint Brush Can Be

### for Cleaning

Among the interesting inventions of recent inventors' show in Chicago is a paint brush. The body of the brush is made of two similar separable parts which are adjustable and may be taken apart for cleaning. Adjustment is such that the separable body portion is extended to avoid the possibility of some uses such as stripping paint. The brush is adjusted as required or taken apart for cleaning. It may be used by using one half section simply loosening a screw and half of the brush touches the surface and rides the frame. (Patented January 23, 1934, E. J. Van Buren St., Chicago, Ill.)

(Continued on inside back)

For more information, contact at right, specify product, see information blank between pages 2



## Interesting"

### from Banana Peels

board is now being manufac-  
from cotton waste, pulp from  
ge peels, and the leaves of  
other interesting paper applica-  
use of colored molded paper  
peels on U. S. warships. This  
that many similar postwar uses  
colored wheels were installed on  
control points to identify the  
systems and valves. (American  
Calco Chemical Div., New

### ing Coatings Protect Process

udies of the National Bureau  
steel pipes coated with various  
that phenolic resin baking  
tically unaffected by operating  
ide range of services. Typical  
such coatings to pipe in the  
the miles of steel pipe in salt  
panies that are so protected.

### Trays With Aluminum Frames

freezing trays embodying an  
offer the advantages of light  
ing, hand protection and good  
and cold, — shortening proc-  
non-corrosive feature is es-  
in food applications.

### g the World in Wax Paper

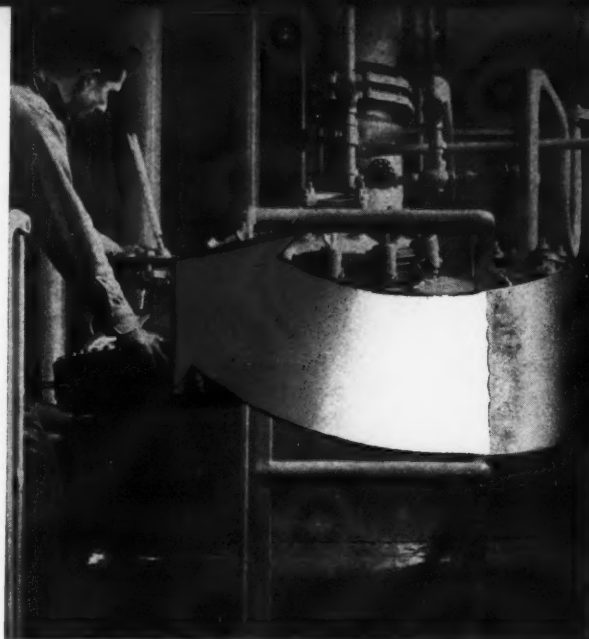
ed up in wax paper. 350,000  
every year to package and  
eals, pastries, cheese, meats,  
strip one foot wide this waxed  
e the earth 500 times. Its  
over 110,000 tons of paraf-  
so Oilways-Standard Oil Co.)

### Can Be Taken Apart r Cleaning

ing inventions displayed at the  
ow in Chicago is a two sec-  
The body portion and bristles  
ar separable assemblies which  
may be taken apart to facilitate  
ent is such that either one of  
portion assemblies may be  
the possibility of uneven wear.  
h as stripping, the brush may  
ired or taken apart and only  
It may be used as a sash  
ne half section alone or by  
screw and adjusting so that  
touches the putty and other  
c. (Patented Sept. 5, 1945 —  
44029. E. L. Hawkins, 4416  
Chicago, Ill.)

on inside back cover)

information on prod-  
t, specify CP A4309  
information request  
een pages 2-3.



## New Pfaudler Glass-Lined Steel Thermometer Wells 60% to 90% Faster

New Pfaudler "restricted tip" ther-  
mometer well. Close tolerance  
between inside of well and bulb  
surface speeds up temperature  
indication 60% to 90%... continued  
improvement in the design of stan-  
dard Pfaudler reactors makes them  
more useful to you!

## CRITICAL TEMPERATURES ARE IMPORTANT TO YIELDS

At some point in every chemical reaction,  
temperature is critical. It has a direct bearing  
on yield. Recognizing this, Pfaudler announces  
a new "restricted tip" glass-lined steel ther-  
mometer well for its standard line of glass-lined  
steel reactors. Temperature indication has been  
speeded up 60% to 90%, depending entirely  
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faster heat transfer make Pfaudler kettles more  
adaptable to your needs than ever before.

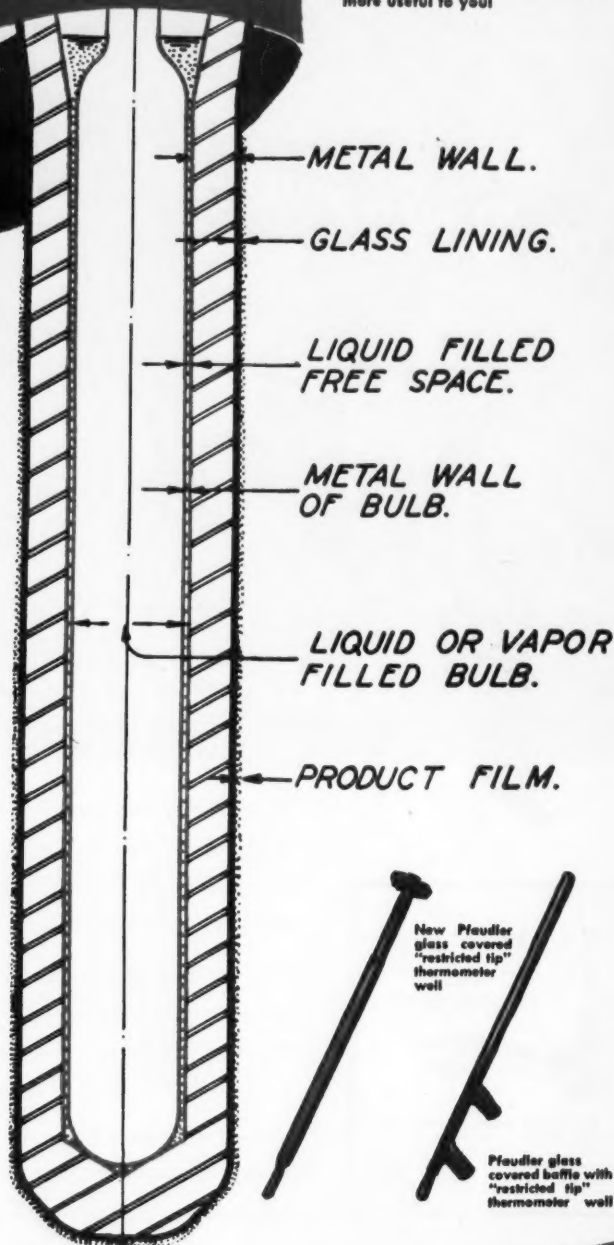
Standard Pfaudler reactors are available in  
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steam jackets, top-heads, agitators, thermometer  
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Company \_\_\_\_\_



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**HydroLECTRIC.**



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## CHEMICAL PREVIEW

Edited for Production and Laboratory  
Men in the Chemical Process Industries

VOL. 9

MAY-JUNE, 1946

NO.

### What's In This Issue

How To Get More Product Information .....	2
Cover Pictures .....	
That's Interesting .....	2, 3, 13
New Solutions of Plant Problems .....	
Practical Ideas .....	
Materials—Production and Maintenance	
Control Instruments and Equipment .....	
New Literature — Catalogs and Books .....	
Production Equipment .....	
Product Directory .....	13
Advertisers In This Issue .....	13

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CHEMICAL PREVIEW MAY

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## The Cover

Direct oil fired varnish oil units illustrated on the front cover are a typical application of Inconel's strength at high temperature, as well as resistance to corrosion. Fatty acids containing linseed oil are processed in these kettles with no discoloration. Installation is in a Buffalo, N. Y. plant. An article on the use of nickel alloys appears on page 112.

### How To Get More Product Information

To make it convenient for readers to locate information in CHEMICAL PREVIEW there is . . . on pages 132 and 133 . . . a complete directory of all products that are featured in editorial articles or described in the advertisements in this issue; On page 134 you will find a list of the advertisers whose products are described in this issue; And to make it easy for you to secure additional information quickly there is a handy request slip inserted between pages 72 and 3.

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If you have changed your business address recently please notify the publishers promptly so that there will be no interruption in the delivery of CHEMICAL PREVIEW. Please be sure to give both your old and new address; Include your title, the name of your company and the main product they manufacture. Full information will secure prompt action.

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### Have You A New Product?

If you have recently developed a new or improved product, a piece of laboratory or plant equipment or a new material, of specific interest in any line of chemical process manufacturing . . . send information regarding it to our Editors.

If it meets their requirements, they will introduce it to the chemical processing industries through the editorial pages of CHEMICAL PREVIEW. More than 25,000 copies of this publication are effectively distributed through the chemical processing industries.

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When inquiring specify CP A4311 . . . see information request blank, pgs. 2-3

# ★ Conveyor System Dips and Dries VARNISH ON ARMATURES

*New Solution*

## ● How to Select CORROSION RESISTANT ALLOYS



200 ARMATURES DIPPED AND BAKED IN 60 MINUTES

- ★ **Time savings of 50% - 90% obtained; fire hazards reduced; any type of varnish can be used**

**PROBLEM** — Faster methods of varnish application in mass production of electrical equipment. Time consuming draining period is typical of factors that cause delays.

**Solution** — The application of insulating varnish to armatures and stators with modern assembly line speed and precision is made possible through the Zanderoll process, a development of the Sterling Varnish Co., Haysville, Pa. Patents are now pending. The equipment will be available through the Blaw-Knox Co. The process reduces production time, labor, materials and space requirements and overcomes handicaps in dipping and baking. It differs from other insulating processes by being designed precisely for individual needs in the manufacture of rotors, stators, coils and kindred electrical products. It produces a fine insulation because of thorough penetration, uniform distribution, and a complete bake. The process utilizes a combination of conveyor systems, a series of dips and application of heat as the treated pass through an oven. Refinements in

the application of heat include an insulated oven, which holds heat and transfers that heat by radiation and convection to the products passing through. The process starts at the press of a button with no preheat of the oven necessary. Direct, immediate temperature readings may

- **Nickel base corrosion resistant alloys have physical properties required for operations at elevated temperatures and pressures**

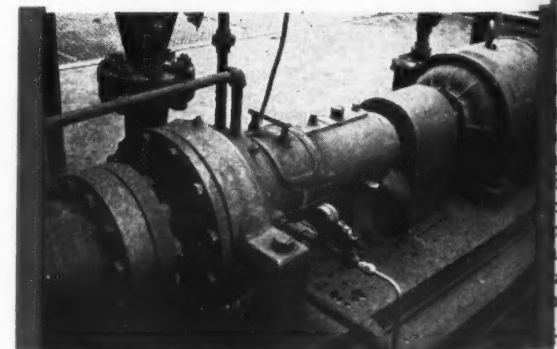
**PROBLEM** — To select corrosion resistant alloys that will serve safely and economically in the production of Iso-Butane, Styrene and Neoprene; and also to select alloys that will resist the action of sulphuric acid, hypochlorite solutions, wet chlorine gas and other strongly oxidizing agents.

**Solution** — Hastelloy alloys A and B were developed for resistance to hydrochloric acids and to other reducing acids and reducing corrosive salts. Alloy A, a nickel-base, contains approximately 20% molybdenum and 20% iron. It is resistant to hydrochloric acid and reducing acid conditions up to 170° F. Alloy B contains 30% molybdenum and 5% iron and is resistant to the same materials up to 212°. In organic synthesis, such as halogenation, sulphonation and isomerization, using the Friedel and Crafts reaction, alloys A and B have adequate corrosion resistance for carrying out

be taken anywhere at any time during the operation of the process. Stators and armatures are visible during the dipping operations through specially designed glass doors. Accuracy of control in the Zanderoll process results in a highly uniform product. Varnish distribution is exact and even, so that the balance of the treated pieces is not upset and balancing can be done before treating. Because of the dip method employed in the Zanderoll process, the varnish tanks are smaller, the varnish is used up in a short time, so that thinning and other elaborate measures to maintain viscosity and freedom from contamination are reduced to a minimum. Because of the small volume of varnish in the system, the fire hazard is greatly reduced. Both small and large pieces may be treated, as well as special and non-uniform sizes, such as rotors weighing in excess of 2000 pounds. Non-conveyor adaptations can be designed to treat such pieces. Any means of treating and any type of insulating varnish can be used. Information red lends itself particularly well to this process because of its economy and ease of control. All varnish in the windings is retained and there is no drainage from any dipped piece. The period which has to be set aside for draining in conventional methods of dipping may be eliminated. Varnish is applied only to the parts requiring insulation. At the exit side of the oven the armatures emerge. The armatures have been heated, dipped, baked and dried. They now travel out and down. As they return to their point of origin on lower rack, they cool and are ready for shipment.

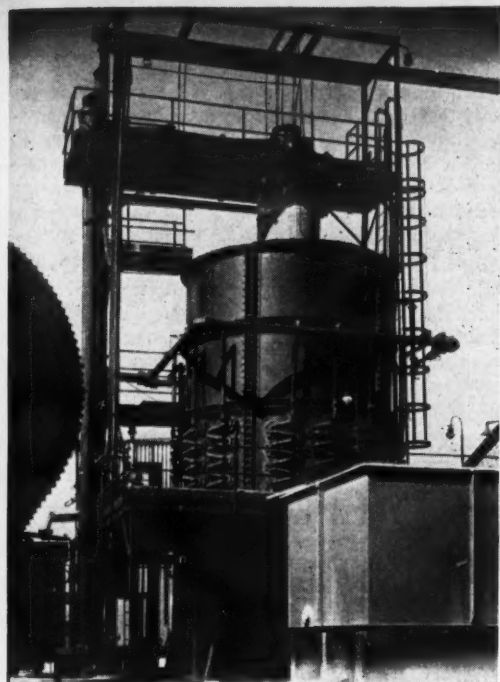
THE BLAW-KNOX CO., Farmers Bank Bldg., Pittsburgh 22, Pa.

When inquiring specify CP A4312 — see handy form pages 2-3



Complete centrifugal pump of cast Hastelloy B, used in producing aromatic hydrocarbons





Sulphuric acid concentrator equipped with Hastelloy D heater tubes, operated at 500 lbs. steam pressures for concentrating sulphuric acid up to 96%

In these non-oxidizing reactions. Alloys A and B — particularly B — are useful for corrosion resistance in the production of Iso-Butane, Styrene and Neoprene. This alloy resists attack by hydrochloric acid produced by hydrolysis with chloride salts used as catalysts. Uninterrupted production of Iso-Butane by the isomerization process, using aluminum chloride as a catalyst has been possible by the use of these alloys in tower and piping assemblies. Aluminum chloride and HCL gas used as a catalyst in the production of Styrene also presented a corrosion problem where Hastelloy alloys were used successfully. The practical use of Hastelloy was demonstrated in the production of Neoprene. In this process cuprous chloride and HCL are involved. Hastelloy alloy D is a nickel silicide containing approximately 85% nickel, 10% silicon, 3% copper and 1% aluminum. It has resistance to sulphuric acid and is chiefly used for this purpose, although it also has resistance to phosphoric acid and many acid salts. It has high abrasive resistance and wearing qualities. In the handling of sulphuric acid its physical properties, resistance to shock and breakage make Hastelloy D a desirable alloy. In concentrating sulphuric acid, Hastelloy D tubes were used which permitted higher pressures resulting in greater production. A "universal resistant" alloy Hastelloy C is a nickel base, containing 17% molybdenum, 15% chromium, 5% tungsten and 5% iron. It will adequately resist wet chlorine gas, hypochlorite solutions and other strongly oxidizing agents such as ferric chloride and cupric chloride. Hastelloy alloys, because of their corrosion resistance ability in many fields, are particularly adapted to batch processes and also permit many different reactions in the same vessel. A comprehensive story on these alloys with recommended uses for a wide variety of chemicals, is contained in a booklet and tabulated data sheet, and is available from the company named below.

HAYNES STELLITE CO., Dept. CP, Kokomo, Ind.

When inquiring specify CP A4313 — see handy form pages 2-3

MAY - JUNE, 1946

# Now!

## A COMPLETELY AUTOMATIC MILTON ROY pH CONTROL SYSTEM

Automatic pH control is now available. The system employs the Milton Roy Step-Valve Pump with electronic volume control actuated by a standard pH meter and controller. It affords fully automatic control of pH value with reagent flows as low as one pint per hour. A second variable, such as rate of flow, can be compensated for in this system.

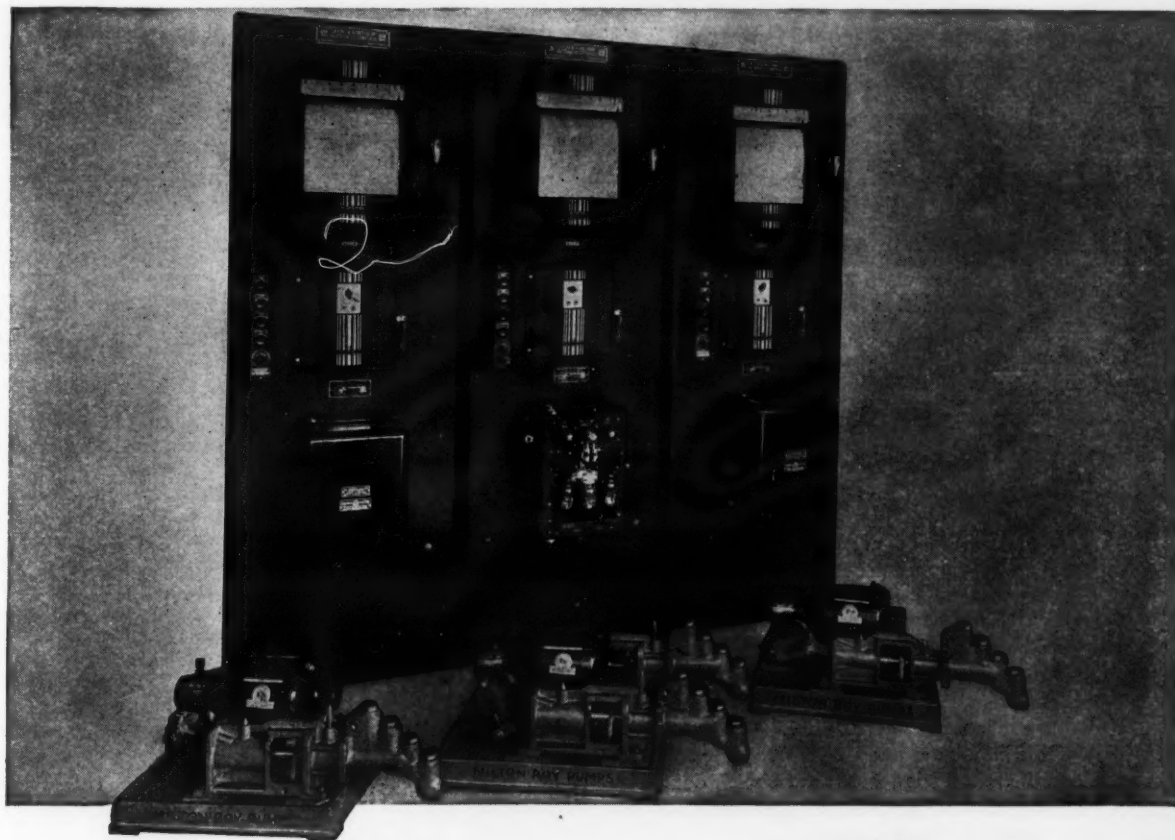
Typical applications are the addition of treating chemicals in exact proportion for municipal water treatment; to prevent discharge of wastes that are excessively acid or alkaline; to assure boiler water treatment that avoids introducing excess solids at low loads or under treatment at peak loads; to assure

precise and continuous pH values as in the processing of labile biologicals.

Automatic Control Systems are recommended for

- Water Treatment
- Penicillin Preparation
- Pharmaceutical Manufacture
- Chemical Processing
- pH Control of Pressure Reactions
- Waste Disposal
- Other Applications

Inquiries are invited. Write for Technical Paper describing applications of electronics in controlled volume pumping.



# MILTON Roy COMPANY



1310 E. MERMAID AVE., CHESTNUT HILL, PHILA. 18, PA.

When inquiring specify CP A4314 . . . see information request blank, pgs. 2-3

## CHIKSAN FORMULA

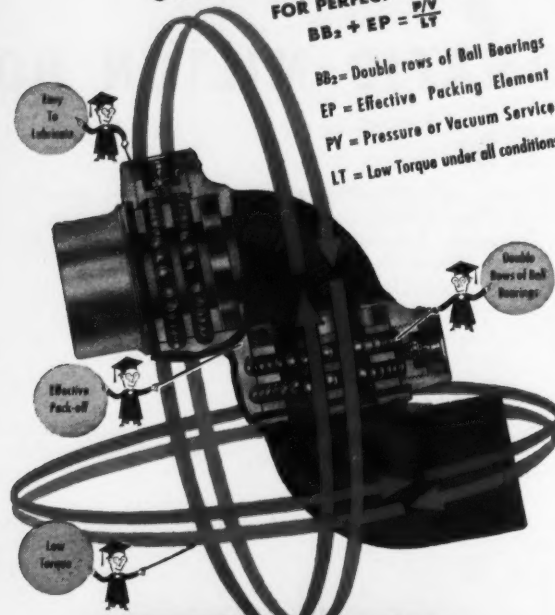
FOR PERFECT FLEXIBILITY  
 $BB_2 + EP = \frac{P/V}{LT}$

BB<sub>2</sub> = Double rows of Ball Bearings

EP = Effective Packing Element

PV = Pressure or Vacuum Service

LT = Low Torque under all conditions



CHIKSAN FORMULA  
 MAY BE THE ANSWER  
 TO YOUR PROBLEM!

Chiksan flexibility is so precisely engineered that the elements which provide for easy turning and perfect seal under pressure or vacuum can be stated in a few simple symbols. This streamlined design, expressed in precision manufacture, has won world-wide acceptance for Chiksan Ball-Bearing Swivel Joints wherever movement or rotation is required in pipe lines handling liquids, vapors and gases... in aircraft... electronics... railroads... chemical and food processing plants... refineries... marine installations... open hearth furnaces and rolling mills... and hundreds of other applications. The new Chiksan Catalog illustrates and describes over 500 different Types, Styles and Sizes. Your Engineering Department should have a copy for ready reference.

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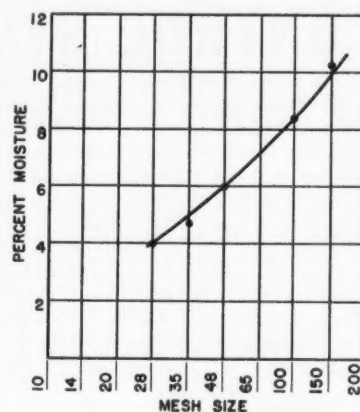


When inquiring specify CP A4315 — see handy form pages 2-3

## New Solutions

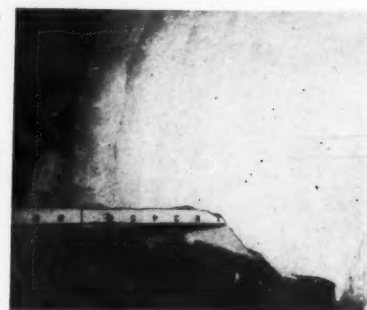
### Stainless Steel Screen Improves Filtration of Fluorspar

*Practically eliminates filter media replacements; more filter capacity; less moisture in cake*



**Problem** — Fatty acid reagents used in flotation of acid grade fluorspar tend to bind the filter cloth when filtering the flotation concentrates. Blinding causes filtering capacity to drop and moisture in cake to increase. This requires frequent changing of filter cloth or special cleaning operations both troublesome and costly.

**Solution** — To remedy such plant operating difficulties, the usual canvas or palm twill filter media is replaced by a stainless steel screen. The screen is applied to the rotary filter drum in relatively the same way as canvas cloth and held in place with stainless steel



Fluorspar filter showing cake

banding wire. The relatively coarse screen with larger open area is not affected by the sticky soap reagents and permits free filtering of the concentrates. In the operation of a filter equipped with stainless steel filter media, a definite technique is necessary. This is due primarily to the larger area of the screen as compared to canvas. First of all a much higher vacuum pump displacement per square foot of filter area is required. Second, precoating the drum with concentrates is necessary to prevent particles from passing through the screen with the filtrate. Usual practice is to set the scraper blade approximately 1/2" to 3/4" from the rotating drum thus allowing a cake to remain and act as filter media. In this way fine concentrates are retained on the drum and full vacuum is directed toward removing the maximum amount of fluorspar concentrate. Low pressure air is used several times a shift to remove the cake as required when the super-imposed media shows a slight loss in efficiency. The following general operating data concerns fluorspar flotation plants which are using special rotary drum filters. The high capacity and low moisture is attributed to the use of stainless steel filter media in the manner described. In the more favorable installations, where the feed contains a minimum of slimes, four or more tons per square foot of filter area per day filtering rate is achieved. This rate is maintained with very little operating attention as it is only necessary to remove the "sand media" about once per shift. Where a substantial amount of slime is present in the feed it be-

comes necessary to remove the "cake media" more frequently, perhaps three times per hour in order to maintain a good filtering rate. Two tons per square foot is considered a lower limit for this type of filtration practice. Where frequent "precoat" removals and reformings are required a diaphragm pump is used to advantage as it is not affected by abrasive solids.

**Results** — Decided operating improvements, reducing operating costs in filtering as well as drying. Replacement of filter media is no longer a problem. These rotary fluorspar filters have been in operation at one large plant for nearly three years without a single change in filter media. Capacity has been increased and there is lower moisture in the filter product.

DENVER EQUIPMENT CO., Dept. CP, P.O. Box 526  
 Denver 17, Colo.

When inquiring specify CP A4316 — see handy form pages 2-3

★

### Prefabricated Conduit Simplifies Central Heating Installations

*Aid in bringing advantages of better combustion and smoke elimination*

**Problem** — Soot fall during heating season in highly industrialized areas runs as high as 2000 tons per square mile per month. Cleaner, more efficient heating both for health and operating economy is a necessity.

**Solution** — Centralized heating systems, although increasing use throughout recent years, continue to offer the solution to such problems in connection with established industrial plants and those which are to be constructed. There are a number of sources from which steam for central heating of industrial communities may be obtained. These are (1) The electric utility may have a central power plant nearby with sufficient by-product steam capacity. (2) One of the plants may have enough boiler capacity to sell steam to the others. (3) There may be an existing available steam source nearby — often with sufficient exhaust steam to supply most of the community's needs. (4) It may be practical to build and operate a central steam plant on a cooperative basis. (5) An industrial concern with several buildings may operate its own central boiler plant. A practical example of how an industrial organization may build and operate its own plant, extending and remodeling it as growth and changed requirements dictate is found in the case of a major rubber company. The most recent of a number of extensions that have been made during intervening years is that of providing high pressure steam for new research laboratory. An 8 inch line 2100 feet long was extended from one of the other plants. Since the laboratory is located on a hill, it was not feasible to pipe the line in the direction of flow. A steam separator was installed where the line leaves the other plant and another where it enters the laboratory building. The line is large enough so that the velocity of steam is low. Prefabricated sections tailored specifically for this installation were delivered to the job in convenient 21 foot sections, complete with couplers and accessories, minimizing field work. The units are presealed and protected against worst water conditions. In installations like this, any length of pipe can be turned to save time — permitting all welding to be done on top. Prefabricated Z bends laid in trenches prior to coupling serves as expansion loop. Pipe is welded near anchor plate which serves as base for future service connections. In completed installation, manhole cover pro-



## New Solutions

vides access to service connections. An eight inch cast iron well water line, 2300 v., conduit and telephone conduit were run underground in the same trench with the steam service. Prefabricated conduit sections are available in a number of constructions for piping steam, hot water, oil, hot or refrigerated process liquids; single or multiple pipe systems with any or all insulated to requirements. (The particular installation at major rubber company plant, referred to here is described in great detail in an eight page bulletin which is one of a series of central heating case histories.)

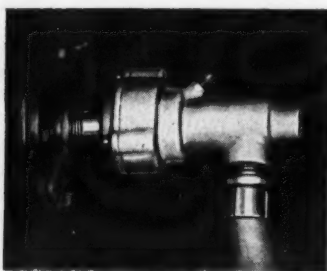
RIC-WIL CO., Dept. CP, Union Commerce Bldg., Cleveland, Ohio.

When inquiring specify CP A4317 — see handy form pages 2-3

\*

## Rotary Water Joint For Cooling, Heating Revolving Cylinders

For leakproof, corrosion proof service in applications up to 200° F.



Joint on printing press cooling rollers

**Problem** — In utilizing rotary water joints for cooling or heating revolving shafts, cylinders or drums the difficulties sometimes encountered include leakage, corrosion and friction. Wobble or run-out is another troublesome problem.

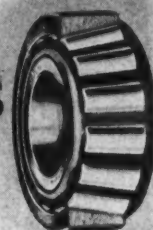
**Solution** — A new type of rotary water joint features a groove cut on rotor running counter to the direction of rotation. The sweeping action of the helix prevents leakage between the shaft and housing. Precision machining on both the rotor and the housing leaves a maximum clearance between the two surfaces of .0005". Rotor concentricity is held to .001 total indicator reading. The rotor is machined of stainless steel which provides much greater strength than cast shafts. Housing is of bronze. Both rotor and housing resist the corrosive action of water, brine, and other similar liquids that may be used for cooling or heating. Standard, sealed, "lubricated for life" ball bearing provides greatest freedom of movement. Friction is so slight that the flexible hose connection keeps the housing from turning. Wobble is eliminated by special tooling of threads which are concentric in relation to the bearing surfaces.

**Description** — These unions are available in two types — "Monoflow" for use where the liquid can be passed directly through the roller or cylinder being cooled or heated; — "Duoflow" for use where the liquid is to be introduced and drained from one side of the roller or cylinder being cooled or heated. Four standard sizes are available in both types from 1/2" to 1 1/2". However, because of the basic design of the union, any size can be manufactured from 1/4" pipe size to 6". Bulletin D-10 on request.

DEUBLIN CO., Dept. CP, Northbrook, Ill.

When inquiring specify CP A4318 — see handy form pages 2-3

## DODGE PUTS TIMKEN BEARING PRECISION



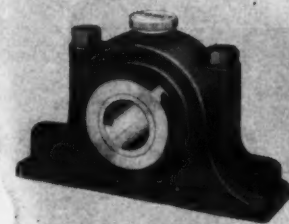
## INTO WORKING CLOTHES

Delivered fully assembled, adjusted, lubricated, the Dodge-Timken Double Interlock Pillow Block is ready to lock on the shaft, run at full speed and full load. Dodge mounts, seals and houses the bearing assembly, with its double row of precision-finished rollers—makes it available for immediate service, with no assembling required on the job.

From our foundry, through many precision operations, on the latest machine tool equipment, the parts required for mounting this bearing are manufactured complete in the Dodge factory. This is one of the famous Dodge 30,000 hour line, covering a wide range of industrial bearing requirements, and promptly available from distributors' stocks.

Look for the Dodge distributor in your classified telephone directory under "Power Transmission Equipment."

DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA



## Dodge-Timken Double-Interlock Bearing



### THE SYMBOL THAT CAME TO LIFE

257 factory graduate Transmissioners wear this sign of a nation-wide personal service that provides the latest answers to power transmission problems.



# DODGE

MISHAWAKA

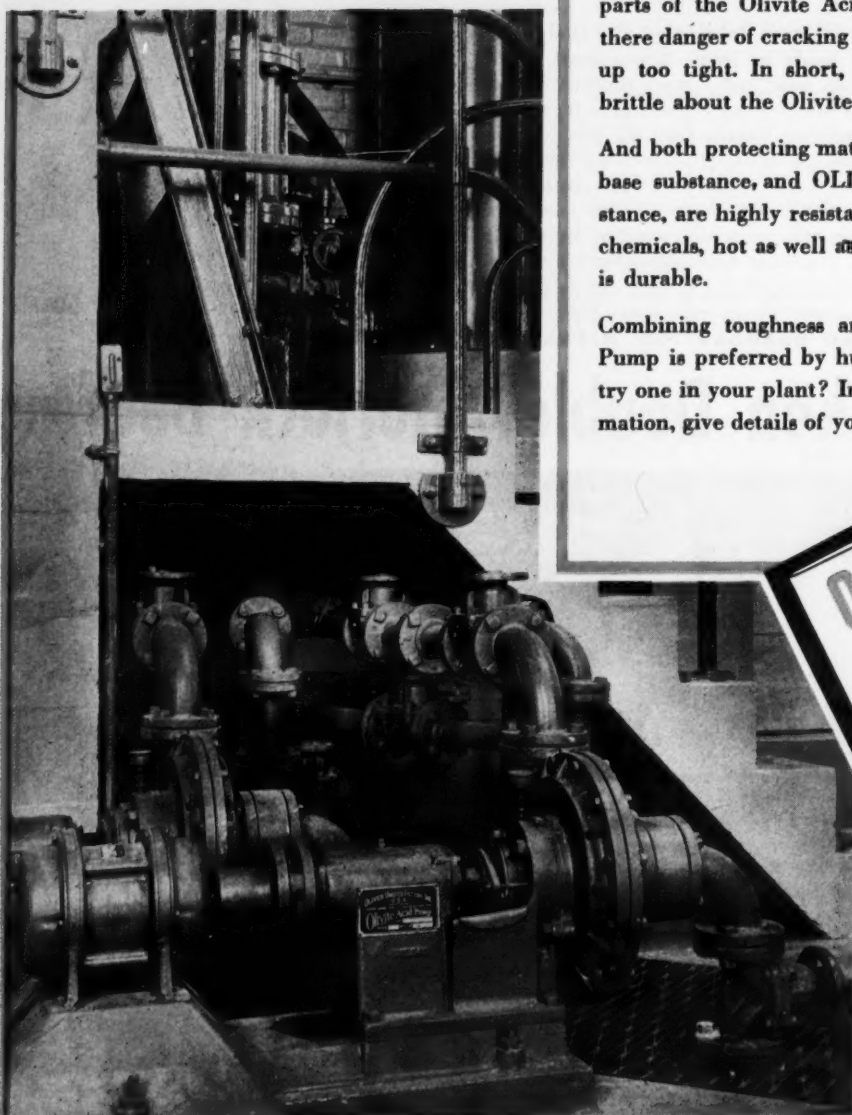
Copyright, 1946, Dodge Mfg. Corp.

FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY, ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS

When inquiring specify CP A4319 . . . see information request blank, pgs. 2-3

# OLIVITE

## The Non-Fragile Acid Pump that can Handle Hot Acids



Accidental blows will not damage the pumping parts of the Olivite Acid-Handling Pump; nor is there danger of cracking something if nuts are taken up too tight. In short, there's nothing fragile or brittle about the Olivite Pump.

And both protecting materials OLIVITE, a rubber-base substance, and OLIVEX, a strong, resin substance, are highly resistant to most acids and many chemicals, hot as well as cold. In short, the Olivite is durable.

Combining toughness and durability, the Olivite Pump is preferred by hundreds of users. Why not try one in your plant? In writing for further information, give details of your pumping requirements.



Send for Bulletin 308. It describes in detail the 1 1/4", 2" and 4" Olivite Acid-Handling Pumps.

New York 18, N. Y.  
33 West 42nd Street

San Francisco 11,  
California

Canada: Sales & Manufacturing Representative

**OLIVER  
UNITED FILTERS  
INC.**



E. Long Limited, Orillia, Canada

Factories: Oakland, Calif.—Hanilton, Pa.—Orillia, Canada—Melbourne, Australia

Chicago 1, Illinois  
221 N. LaSalle Street

Western Sales Division  
Oakland 1, Calif.  
2900 Glencock Street

## New Solutions

### Instrument Maintenance Important In Process Plants

*Refinery instrument department suggests the pattern for others*

**Problem** — Extensive use of instruments and control dates need for adequate instrument maintenance.

**Solution** — Instrument departments with specialized personnel have been set up to handle this important work in many process plants. One of these at the Socony-Vacuum Oil Company, Inc. represents a well organized department for this function. Instrument standard specifications have been developed to show general plant requirements and instrument specifications. New instruments, when received, are checked against these specifications, purchase requirements and application. A complete organization line-up is provided for to care for all details in this department. The Instrument Department Laboratory, under the supervision of an instrument specialist, makes complete repairs. A wide variety of test equipment aids in this work. Heavier equipment is repaired in the instrument shop. Instrument mechanics, specially trained for instrument maintenance and repair, spend most of their time doing this work. Pipe fitters supplement the department and have specialized knowledge in instrument applications. Apprentice training is provided for on the job and in the classroom.

General engineering duties include computation for flow measurement, review of instrument specifications, records of installations, examination of recorder charts, establishment of maintenance schedules and keeping of files on instruction and parts lists. A maintenance manual, prepared by the department, might well be used by other companies using a large number of instruments. It acts as a guide to scheduling work and establishing preventive care. Records of the department are important. Complete card data is kept on each instrument. File folders are maintained with adequate records of each piece of equipment. Maintenance schedules and records provide a guide to proper care. Specific examples of step by step procedure, shutdown inspection, inspection maintenance show clearly required operation. More details on the Instrument Maintenance Department may be secured from the organization named below.

BROWN INSTRUMENT CO., Dept. CP, Philadelphia 44, Pa.

When inquiring specify CP A4321 — see handy form pages 2-3

### Basic Pointers on Selection of Centrifugal Pumps

*Data in booklet covers seven different types of impeller design*

**Problem** — The selection of centrifugal pumps for various applications requires a fundamental knowledge of construction and uses to which this equipment will be applied in the process industries.

**Solution** — A recent publication lays an elementary foundation for anyone interested in centrifugal pumps upon which to build and enlarge his knowledge. Fundamental hydraulic laws are discussed, giving a basic explanation of vacuum (negative pressure) and discharge pressure. Sealing requirements, clearances, slots are important considerations in reducing "back flow," "by pass" or "short circuit-

## New Solutions

ing" to a minimum. The effect of wear of solids in the pumped fluid is analyzed and ease of replacing wearing parts mentioned in selecting this equipment.

The Impeller, also called Runner, Propeller, Wheel, Spider, etc., is the heart of a centrifugal pump. Its design and selection affects its performance. Its requirements determine size, number and size of the impeller. Seven basic types are listed with descriptions of each.

Illustrated and explained are the most common types of design and selection affects its performance. Its requirements determine size, number and size of the impeller. Seven basic types are listed with descriptions of each. Illustrated and explained are the most common types of design and selection affects its performance. Its requirements determine size, number and size of the impeller. Seven basic types are listed with descriptions of each. This handy booklet, "Facts You Should Know About Centrifugal Pumps and Impellers," tells you what should be helpful to anyone using pumps.

THE DEMING COMPANY, Dept. CP

When inquiring specify CP A4322 — see handy form

### High Pressure Gasket Bolting Requirements

*Self-sealing serrated disc design for high temperatures, corrosion; maintenance*

**Problem** — To meet the requirements of specific applications, gasket manufacturer has developed a gasket that would combine the pressure resistant qualities of all metal gaskets with the requirements of a softer sealing medium. An important requirement was the ability to maintain rigidity at temperatures where materials lose their strength and become plastic. To resist pitting and puncture by corrosive liquids and eliminate the danger of the gasket might be caused by rust and corrosion due to view of the design of this special gasket.

**Solution** — The gasket produced to meet these applications is a serrated type gasket called "Bellowseal." It consists of two discs of Iron, Low Carbon Steel, Monel or Stainless Steel, joined on their external faces with standard welded together around their outer periphery. It literally uses the pressure to be sealed to exerting sealing pressure on the flange face, entering the interior of the gasket exerting pressure in excess of the required sealing force. **Results** — Normally required to expand 1/4 inch under test the gasket was expanded more than 35 times what would be required if it withstood cycle changes from zero to 850 degrees F. with bolts were only finger-tight at zero pressure.

GOETZE GASKET & PACKING CO., New Brunswick, N. J.

When inquiring specify CP A4323 — see handy form

When inquiring specify CP A4320 . . . see information request blank, pgs. 2-3



ect of wear, due to particles  
is analyzed. Special metals  
parts must be analyzed in

ner, Propeller, Fan, Paddle  
of a centrifugal pump, and  
its performance. Operat-  
e, number of vanes, shape  
n basic types are illustrated

the most common types of  
centrifugal pumps as well as  
recommended uses of single suc-  
teristics, maintenance and  
A basic story of hydraulic  
balance and its effect on  
e tells in simple language  
user. One type of impeller  
ns. A helpful guide to se-  
"do's" and "don'ts" for  
iled descriptions and clear  
ious parts in all these types.  
u Should Know about Cen-  
," tells a basic story that  
ng pumps.

Dept. CP, Salem, Ohio.

— see handy form pages 2-3

## Gasket Has Light Requirements

design; resists high  
; maintains rigidity

requirements of a number of  
manufacturer had to produce a  
pressure and corrosion res-  
askets with the light bolting  
medium. One particularly  
e ability of the gasket to  
res where most gasket ma-  
become plastic. Also, it had  
by corrosive hot gases and  
ger of the difficulties that  
corrosion deposits, especially  
pecial gasket.

anced to meet the needs of  
ed type gasket, known as  
two discs of metal (Armco  
nel or Stainless Steel) ma-  
with standard serrations and  
uter periphery. The gasket  
sealed to exert a correspond-  
ange faces. Line pressure  
sket exerts expansion pres-  
ealing force.

o expand only .005 to .010  
expanded repeatedly more  
required in normal service.  
n zero to 600 psi steam at  
es F. without leakage and  
ero pressure.

NG CO., INC., Dept. CP,

— see handy form pages 2-3

**ODS** **OLIVER DIAPHRAGM SLURRY**

**THE DIAPHRAGM PUMP THAT OPERATES FOR A LONG TIME — WITH LOW MAINTENANCE**

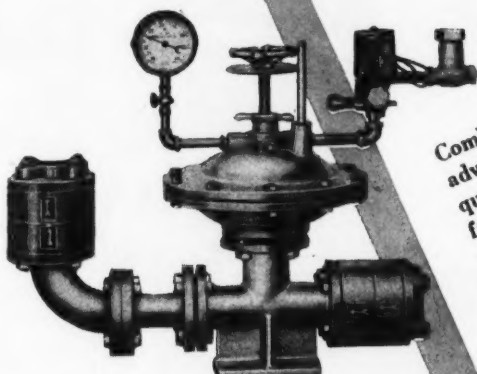

There's no mechanical linkage to the diaphragm... a definite low-maintenance advantage.

There's no perforation in the diaphragm... another definite low-maintenance advantage.

There are no motor, stuffing box, packing or high speed moving parts... still other low-maintenance advantages.

Combined with these features are several operating advantages such as: ability to handle small or large quantities against high heads; ability to draw feed from a deep sump; facilities for changing capacity without stopping; device for "metering" the flow, if desired.

Yes, the O.D.S. is a very practical, useful pump for handling sludges, slurries Hundreds are in use. Why not try one or a battery in your plant? In writing for Bulletin 309, give full details of your pumping requirements.

**OLIVER UNITED FILTERS INC.**

New York 18, N. Y.  
33 West 42nd Street

San Francisco 11,  
California

Canada: Sales & Manufacturing Representative

Chicago 1, Illinois  
221 N. LaSalle Street

Western Sales Division  
Oakland 1, Calif.  
2900 Glascock Street

E. Long Limited, Orillia, Canada

Factories: Oakland, Calif.—Hasleton, Pa.—Orillia, Canada—Melbourne, Australia

When inquiring specify CP A4324 . . . see information request blank, pgs. 2-3

Page 11

## New Solutions

### Silicone De-Foamers for Aqueous Solutions

Effective in low concentrations

**Problem** — Foaming is frequently a very serious problem in chemical process and industrial operations. Aqueous alkaline solutions, in particular, are subject to such severe foaming that sometimes processing become extremely difficult. Industrial operations that are frequently complicated by excessive foaming include steam distillation and vacuum evaporation.

**Solution** — As some silicones have been used to reduce foaming of lubricating oils interest has been prompted in silicone defoamers that would be effective in aqueous or other solutions. An entirely new silicone compound Dow Corning Antifoam A has been developed especially for use against foam in aqueous solutions and emulsions. It has been tested according to procedure outlined by Bikerman (J. Faraday Soc. 34 634 1938). The tests indicate that it eliminates or reduces the foaming when they are subjected to steam of various aqueous solutions even distillation or vacuum concentration. These tests also indicate that Antifoam A is effective in low concentrations, ranging from a maximum of 1 part per 10,000 against strong foamers to 1 part in a million against weak foamers. Report of laboratory testing on a number of aqueous solutions included the following findings: Foaming problems as encountered in paper industry — evaporation of alkaline black liquor; rosin soap solutions. Concentration in parts per million required for defoaming, 1 and 70 respectively. Problem — Soaps and Wetting Agents, Sodium Oleate Solutions, Sodium Alkyl Sulfate Solutions, Aerosol OT. Concentration in parts per million required for defoaming 70, 70, 700 respectively.

The agent is a viscous compound which is translucent, colorless and tasteless. It is chemically inert, nonvolatile and has a slight, but not unpleasant odor. It is insoluble in water and alcohol; dispersible in benzene and other solvents. Available in 1, 10, 50 lb. cans.

DOW CORNING CORP., Dept. CP, Midland, Mich.

When inquiring specify CP A4325  
— see handy form pages 2-3

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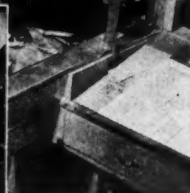
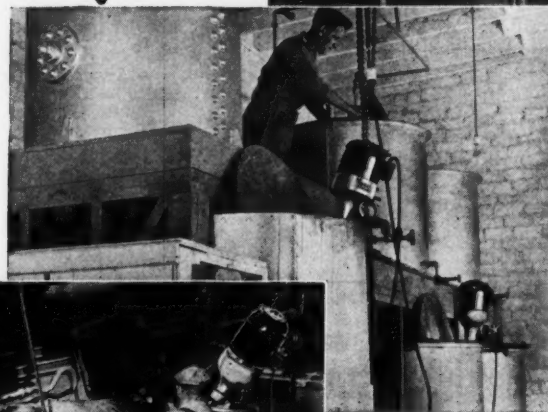
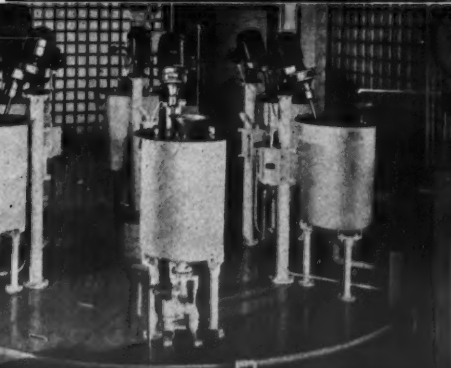
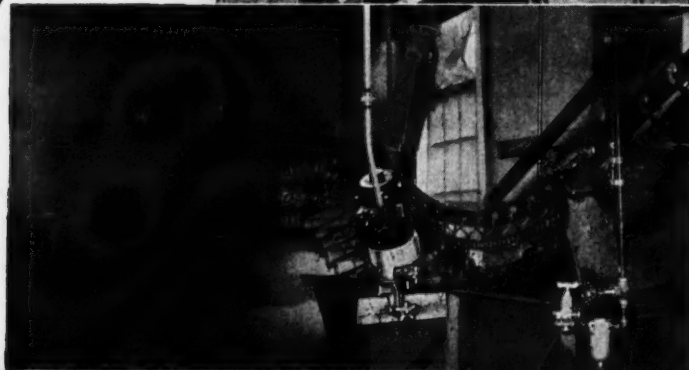
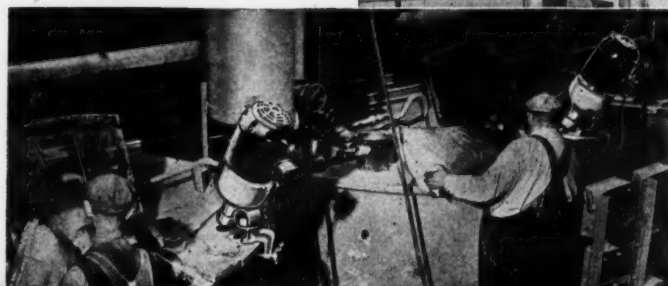
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# Process

BROUGHT TO EVERY PROCESS THROUGH  
LIGHTNIN PORTABLE MIXERS



3

## ILLUSTRATIONS

1. Unusual application of Lightnin Mixers to cyclic, automatic batch operation.
2. Paint dip tank irregular shapes easily handled by Lightnin Mixers.
3. Large capacity tanks are handled with ease.
4. Note Lightnin Mixers ability to fit into odd corners and different shaped tanks.
5. For Food processing Lightnin Mixers improve heat transfer and uniformity.
6. Lightnin Mixer supported separately for small containers.



2



6

adapt Lightnin Portable Mixers. Designed primarily for operation properly applied will give you. They are available in 1/4 to 3 centipoises at mixing temperatures.

## Watch these factors:

1. The size of the batch does not affect or a 5,000 gal. batch without danger to unusable degree.
2. Watch the effect of viscosity. A mixer operates at 80% full load. Use this to burn out your motor. Specific gravity.
3. Don't increase the propeller size. Increasing the propeller size can also.
4. When in doubt ask Mixing Equipment to a new use or whether a different size.

## The Basis of

Twenty-five years of experience have skill which qualify Mixing Equipment field of agitation.

Mixing Equipment Company offers controlled recirculation of liquids to process in the following table:

Blending Miscible Liquids	Mixing Immiscible Liquids	CrySTALLINE Solids Cont.
Simple Mixing of soluble liquids as in reducing concentration	Washing of Liquids Extraction Contacting Caustic Treating Emulsions	Precipitation Evaporation Systems

## Mixing Equipment Company

Complete coverage of industrial individual user and engineers of

Assumption of responsibility for types, performance, characteristics technology.

## MIXING EQUIPMENT

1085 GARSON  
ROCHESTER, N.Y.



# Adapted Agitation

## LIGHTNIN PORTABLES... HANDY LOW COST AGITATORS...

Thousands of these Lightning Portable Mixers are being used throughout industry wherever mixing and agitation is part of a manufacturing process. In practically every case when properly applied, they have shown large savings in time, labor and costs.

### Where to use Portable Mixers

Whether your requirements call for mixers to operate on a wide range of tank capacities and liquid viscosities or for permanent mounting on single tanks, you can use Lightning Portable Mixers to solve your problem with speed and efficiency. For open tanks up to 8 ft. in depth, these mixers, when properly applied, will give you all of the benefits of Process Adapted Agitation. In  $\frac{1}{4}$  to 5 H.P., direct or gear drive for any liquids up to 4000 cP viscosity.

Does not affect the load. You can use a small mixer on a 50 gal. tank. The danger to the motor but mixing action will be reduced to an

acceptable viscosity. A mixer specified for water-like material probably will be used on a material like molasses, and you overload and the mixer gravity also affects load on propellers.

Propeller size. Propeller sizes are selected for specific viscosities. A mixer can also overload and burn out motors.

Mixing Equipment Co., whether your present mixer is adaptable or a different size mixer will save time and trouble.

### Basis of Our Recommendations

Our experience have resulted in an organization, research facilities and equipment Company as a leading authority in the whole broad

of any offers its services in the solution of any problem involving liquids to produce physical and chemical changes, as included

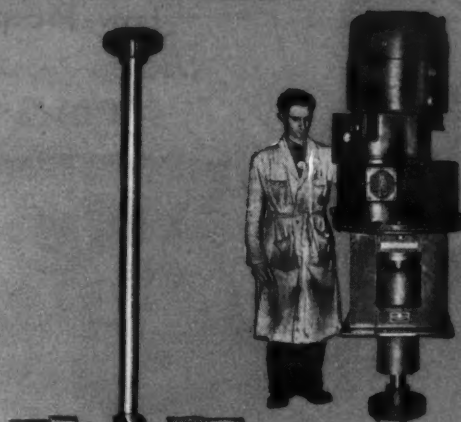
Crystal Size Control	Gas Absorption and Dispersion	Suspension of Solids	Heat Transfer
Precipitation Evaporation Systems	Hydrogenation Aeration Gas Scrubbing Chlorination Gas Washing	Slurries Slaking Lime Suspension of: filter aid, activated carbon, Fullers Earth, Crystals while dissolving	Still Evaporators Reactor Vessels Heating Cooling

### Mixing Equipment Company Offers

Industrial areas with service for both engineers or equipment manufacturer. Responsibility for selection of mixer size, characteristics within limits of existing

## MIXING EQUIPMENT CO., INC.

Garson Avenue  
Rochester, NEW YORK



**TOP ENTERING MIXER**—A wide range of sizes for large or small tanks— $\frac{1}{4}$  to 50 H.P. for vertical use on pressure or vacuum vessels, integral mounting, all impeller types, Radial Turbines and propellers. Illustration above—for open tanks.



**SIDE ENTERING MIXER**—1 to 25 H.P. for horizontal use. Any size tank. Propeller type only. Many models and drives. In use on tanks up to 3,000,000 gallons capacity.

**LAB MIXERS**—Little brothers to Lightning Portables. 4 models—Electric and Air Driven. Described in Bulletin B77.



### MIXING EQUIPMENT CO., INC. 1085 GARSON AVENUE, ROCHESTER 9, N. Y.

Please send me the literature checked:

- ☐ B-66 and B-76 Side Entering Mixers
- ☐ B-78—Top Entering Mixers
- ☐ B-75—Portable Mixers (Electric and Air Driven)
- ☐ B-77—Laboratory Mixers
- ☐ Mi-11—Operating Data Sheet

Name.....

Company.....

Address.....

## New Solutions

### Valve Closes Lines on Oil Field Lease Tanks

Also applicable to condensate chambers of multiple effect evaporators; flash tanks

**Problem**—It is common practice to use one pump in connection with a number of gathering lines in drawing oil from lease tanks. It is important that such lines be closed as soon as the withdrawal of liquid is completed and before any air or vapor is pumped into the system. When proper shut-off is not accomplished air and vapor do get into system and this can cause trouble all the way down to the refinery. Also, there is the possibility that pumping equipment may become damaged by racing under a no load condition.

**Solution**—The "Air-Lok's" primary function is to automatically close the lines, avoiding the difficulties previously mentioned. By effecting a tight shut-off in the line, it becomes practical to install a vacuum switch in the line near the pump, which will stop an electric or gasoline pumping engine soon after the valve closes. The "Air-Lok" consists of a spherical float connected to a balanced double-disc valve. With oil available in the gathering line, the liquid level rises in the float chamber and causes the valve to open. Threaded connections are provided in the float chamber for possible installation of equalizing lines if desirable. The "Air-Lok" is available in two sizes with flanged connections for use on 3-inch and 4-inch lines. It has applications in other industries such as for draining the condensate chambers of multiple effect evaporators, gas-liquid accumulating tanks and steam condensate flash tanks. With only two moving parts and no springs, packing or stuffing boxes, maintenance is practically eliminated and the cost per unit is held at a low level.

DAVIS REGULATOR CO., Dept. CP, 2562 South Washtenaw, Chicago, Ill.

When inquiring specify CP A4326—see handy form pages 2-3

For more information on product at left, specify CP A4327—see information request blank between pages 2-3.

# A Better STRAINER



- Cadmium Plated For Protection Against Corrosion and For Better Appearance
- High-Grade Woven Monel Wire Screen
- Readily Removed Steel Blow-Off Bushing
- Screen and Bushing Come Out Together — Go Back Together, Automatically Aligning
- For Steam Lines or Water, Oil and Other Fluids
- Reasonably Priced
- 6 Sizes from 1/4" to 2" for Pressures up to 600 lbs
- Many Thousands in Service
- Sold by Over 100 Mill Supply Houses

See Your Supply House or  
Send for Bulletin S-201

**YARNALL-WARING COMPANY**  
125 MERMAID AVE., PHILADELPHIA 18, PA.

## YARWAY STRAINERS

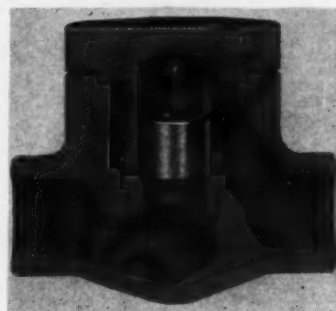
When inquiring specify CP A4328 — see handy form pages 2-3

Page 14

## New Solutions

### Lift Check Valve Developed for Low Pressure Drop

*New design eliminates chattering and pounding at low velocities*



High lift check valve and pounding may also be observed which will cause seats and discs to become worn in a very short time.

**Solution** — To overcome these difficulties an extensive and intensive study of the whole subject of lift check valves was made by the Research and Development Laboratories of the Crane Co. In the early study, types of check valves, service, fundamentals of design and operating characteristics were considered. Tests were conducted to determine:

1. Operating characteristics of existing designs
2. Proper check valve design

After a study of operating conditions it was found that existing designs could be grouped into five general types:

- A. Chamber above disc is slightly relieved to the outlet, with the exit port of the valve extending above the disc when seated.
- B. Chamber above disc is not relieved.
- C. Chamber above disc is relieved to exit only through ports in the disc.
- D. Chamber above disc is relieved radially just above the seat through ports equally spaced around the circumference of the disc.
- E. The design consists of a mushroom type of disc with either inside or outside guide. Relief ports are located in the disc or guide.

One-inch and two-inch valves of the above types in the 600-lb. steel series were tested. Flow tests were made using air at 30 lbs. per square inch and velocities up to 15,000 feet per minute. Water tests were conducted at velocities up to 40 feet per second. Altogether 27 check valves were tested to demonstrate the operation of the five groups mentioned above and the design which was subsequently developed. Tests on the five groups established the fact that pressure must be relieved from the chamber immediately above the disc or the disc will fail to lift an appreciable amount. It also indicated that this chamber must be relieved to a relatively low pressure region to be effective. Development of new design lift check valves from these tests had two objectives.

1. To obtain a valve in which the pressure drop would not exceed that obtained through the valve body when the disc and trim were removed.
2. To obtain a high lift of disc at low as well as high velocities. High lift would practically eliminate

**Problem** — In some types of lift check valves, the design is such that the flow of fluids through the valve produces an unrelieved pressure above the disc which greatly restricts the lift of the disc. This results in restriction to flow, and pressure drop through the valve becomes very high. Chattering



### pH INDICATOR FOR "EVERYBODY"

Here's the pH Indicator for the man who is NOT a pH expert. It's as easy to use as a temperature indicator — just make 3 simple adjustments, put sample into beaker and needle will point to correct pH. Has longest scale of any comparable pH Indicator. Fine for food and power plant, chemical processes, etc. Not affected by nearby electrical equipment. See Catalog E-96(2), sent on request.

**LEEDS & NORTHRUP CO.**, 4995 STENTON AVE., PHILA., 44, PA.  
**LEEDS & NORTHRUP**  
MEASURING INSTRUMENTS • TELEMETERS • AUTOMATIC CONTROLS • HEAT-TREATING FURNACES

Jr Ad E-96(25a)

When inquiring specify CP A4329 — see handy form pages 2-3



### The Safe, Speedy, Economical Way To Handle FILLED CONTAINERS

**THIS ALVEY-FERGUSON** Trolley Conveyor with pendant-type carrier hauls filled containers from remote parts of the plant — at the most practical handling speed, and with uniform, safety-spaced distances between containers.



Alvey-Ferguson Engineers have the background of 40 years' experience in designing the best type of conveyor for each materials handling and products handling problem. They can help you increase production and reduce operating expense. Investigate, without obligation, today!

**THE ALVEY-FERGUSON CO.**, 63 Disney Street, Cincinnati 9, Ohio

**CONVEYING EQUIPMENT**  
**Alvey-Ferguson**  
METAL PRODUCTS CLEANING & FINISHING EQUIPMENT

When inquiring specify CP A4330 — see handy form pages 2-3

CHEMICAL PREVIEW MAY



## New Solutions

chattering at low velocities, and large relief port areas were also considered.

After establishing these principles, design and testing were carried on to determine constructional details. The following factors were determined by tests:

1. The relation between the area around the sleeve and area below. The internal contour of the body was an element of this factor.
2. Width of sleeve band.
3. Sleeve port area.
4. Sleeve and disc clearance.
5. Weight of disc.

Valves were designed for a minimum velocity of 3 to 4 feet per second of water, and 2000 to 4000 feet per minute of air at 30 pounds per square inch. Tests showed that with the disc entirely lifted, the pressure drop through the valve did not exceed 1 pound per square inch. In each size the pressure drop of the assembled valve approached the body friction. After completion of tests, the sleeve design was adopted. Its general construction in section is shown in the accompanying illustration. More details on this lift check valve development are shown in the March 1946 issue of the *Crane Valve World*, from which the above material was prepared. A copy may be secured by writing to the company named below.

CRANE COMPANY, Dept. CP, 836 S. Michigan Ave., Chicago 5, Ill.

When inquiring specify CP A4331 — see handy form pages 2-3

★

### Applications of Ultraviolet Air Disinfection

An unusually comprehensive presentation of the use of ultraviolet light in industrial air disinfection is offered in an illustrated booklet of thirty-two pages. Ultraviolet light as a disinfecting agent is discussed in its relation to food processing, bottling, water purification, production of pharmaceuticals, chemicals, biologicals, sugar and employee protection. The initial pages of this book entitled "The Lamp That Kills Germs" are devoted to a brief discussion of radiant energy and short wave energy, such as ultraviolet and its action in disinfecting outdoor air. The importance of disinfecting air in plant, office and various other areas is emphasized. Air contamination and how infection occurs are given deserved attention. The effectiveness of ultraviolet lamps in the positive killing of not only disease producing germs but the much more resistant spores is stressed. A word of caution is offered in pointing out that when eyes are exposed at close range to the energy from germicidal lamps for as little as 30 seconds painful conjunctivitis will develop. Fortunately there are no known permanent after effects. Also direct exposure may in time fade fabric colors. Of interest to the various process industries are such applications as elimination of air borne bacteria in the various stages of processing such preparations as serums, vaccines and other sterile medications; also pharmaceuticals and cosmetics. An interesting fact in connection with sugar applications is that in disinfecting canners' sugar, irradiation on all sides of each granule has been accomplished by tumbling methods. This procedure results in definite economies. The back pages of the booklet are devoted to pictures of the 30, 15, 8 and 4 watt lamps and a tabulation of specifications. Copies are available upon request.

GENERAL ELECTRIC CO., (Lamp Department), Dept. CP, Nela Park, Cleveland 12, Ohio.

When inquiring specify CP A4332 — see handy form pages 2-3

## PRESSURE-PROOF JOINTS OBTAINED WITH

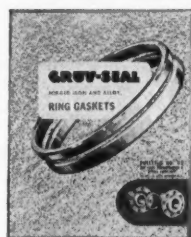
### GRUV-SEAL FORGED IRON AND ALLOY Ring Gaskets

Assure Continuous  
Operation of High  
Pressure and High  
Temperature Pipe Lines  
and Pressure Vessels

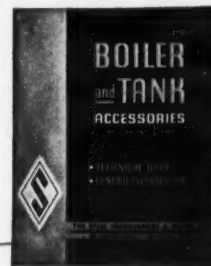


Pressure-proof joints, tight as a weld, give relief from pipe line shutdowns, forestall and reduce unpredictable emergencies. Wrench pressure with Gruv-Seal Ring Gaskets molds a tight seal that stays tight always, reduces power losses and other pipe line troubles. These gaskets are machined to a fine, smooth finish and fit perfectly. Use Gruv-Seal Ring Gaskets on all flange connections, valve bonnet joints, and at joints where ready disassembly is a necessary requirement. They are available in several different grades of metal for

different services and in a full range of sizes. Specify valves and flanges grooved for Gruv-Seal Ring Gaskets. These gaskets are one item of a complete line of Diamond "S" Forged Boiler and Tank Accessories, which includes manhole cover assemblies, handhole cover assemblies, special welding street ells, and other similar devices, all of which are forged to close tolerances from suitable metals. These units fully meet and exceed A.S.M.E. requirements for steel used in pressure vessel parts.



Gruv-Seal Ring Gasket Bulletin 45 contains complete description, and illustrations showing applications, of Gruv-Seal Ring Gaskets (Type O), Oval, and (Type X), Octagon; also descriptions of different grades of metal of which these rings are forged for different services. Bulletin includes complete list of standard sizes and basic dimensions for API and ASA ring numbers and information on additional sizes for other services; also list prices and other useful data. Write for your copy now.



Catalog 10 illustrates, describes and lists forged steel boiler and tank accessories and contains technical data and general information about the use and application of such products. Write for your copy now.

**DROP THE STEEL IMPROVEMENT & FORGE CO.**  
FORGINGS  
980 East 64th Street  
CLEVELAND, OHIO

Tulsa, Okla.—National Bank of Tulsa Bldg. • Los Angeles 28, Cal.—7046 Hollywood Blvd. • New York 7, N. Y.—225 Broadway

Drop, upset and press forgings from one-half ounce to 500 pounds of carbon, alloy and stainless steels and non-ferrous metals.

When inquiring specify CP A4333 . . . see information request blank, pgs. 2-3



To achieve the best results in your filter press operation, it is necessary to employ the right type of filter base.

Sperry is prepared not only to analyze your individual filtration problem and make recommendations—but also to furnish the correct filter base to serve you best in efficiency, durability and economy. We carry a large stock of filter bases in cloth, wool, paper, vinyon, asbestos, glass, rubber and woven metals—monel, stainless steel and other metals. We develop special bases to meet unusual requirements.

Write us today, giving details of your requirements. We will send sample of our recommended filter bases and our new economy price list. There is no obligation.

Filter Base Division of  
**D. R. SPERRY & COMPANY**  
Batavia, Illinois

When inquiring specify CP A4334—see handy form pages 2-3

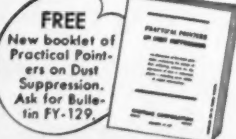
## Eliminate Dust Hazards with Wet Suppression

Hydro-Clone wet suppression instantly reduces dust to easily disposable sludge. In Type "SHH" (shown) the heavy dust is trapped by high velocity impingement on copiously wetted surfaces in the pre-cleaner section. The remaining fine dust is removed in the axial tube and the disintegrator section. The resulting dust-laden water drains to a sludge tank where settlement occurs. Sludge is removed mechanically or manually. All water is recirculated.



Hydro-Clone equipment is fully self-cleaning . . . with no moving parts, screens, bags, or filters to require service. Capacities from 2000 to 30,000 cfm. Write for Bulletin FY-131 for detailed information.

**WHITING CORPORATION**  
15667 Lathrop Ave.  
Harvey, Illinois



When inquiring specify CP A4335—see handy form pages 2-3

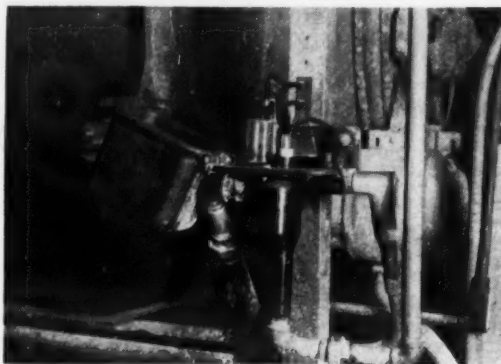
## New Solutions

### Simple pH Equipment Improves Raw Cane Juice Clarification

*Easily maintained system controls, indicates, records directly in pH units*

**Problem** — Better clarification in cane sugar mills with attendant improvement in product and operating economies.

**Solution** — Great improvement in clarification is being reported by cane sugar mills which are using simple, reliable equipment to control the pH value of the limed juice. Because it continuously detects the pH value of the juice and automatically adjusts the lime values accordingly, the correct pH for best clarification is constantly maintained. With this equipment, any departure from specified pH is promptly detected and corrected by readjustment in the flow of lime. This is true regardless of whether changes are caused by variations in the character of the juice, or in the feed of the cane to the mill, or in the quantity of the juice held back in the mill bed by the bagasse. In addition to controlling with a steadiness that has



Glass electrode assembly used with controller adjusts lime values in cane sugar mills

not been generally attainable previously, the equipment indicates and records continuously — directly in pH units. The operator sees what the pH is at all times; the superintendent and chief chemist can see the precision with which pH is maintained at the prescribed value, for they have a permanent record on an easy to read, ready to file chart. Used on juices limed hot, cold or limed after sulphuring, this complete coordinated unit — the newest form of "Micromax pH Control" provides cane sugar mills the advantages of a glass electrode assembly. With this detector is used a self-standardizing potentiometer — a standard strip chart controller. In addition to indicating and recording continuously the value of the solution, it causes a powerful valve drive mechanism to regulate the addition of lime to hold the pH to the prescribed value. The detecting element of this control system, a glass electrode assembly, consists of a sensitive measuring electrode, a reference electrode and a temperature compensator. The assembly is mounted as a unit, with the sensitive ends of the electrodes and compensator in a flow chamber through which moves a continuous sample of the limed juice. As the pH of the solution varies, the electromotive force set up by the immersed electrodes varies correspondingly. The "Micromax" controller is wired to the electrode assembly. Bulletin (N-96-709C) on request.

LEEDS & NORTHRUP CO., Dept. CP, 4934 Stenton Ave., Philadelphia 44, Pa.

When inquiring specify CP A4336—see handy form pages 2-3

### CASE HISTORY No. 5

One in a series of factual experiences of a group of American manufacturers with Multi-wall Paper Bags.

### COST COMPARISON

	100 lb. Burlap Bags	100 lb. Paper Bags
Bag cost per M. . . . .	\$296.20	\$117.85
Bag cost per 100 lbs. . . .	.296	.118
Labor cost per 100 lbs. . .	.125	.050
Total bag and labor cost per 100 lbs. . . . .	.421	.168
Savings per 100 lbs. paper over fabric. . . . .		.253
Savings per ton, paper over fabric. . . . .		5.06

### DETAILS OF LABOR COSTS

Burlap Bags (with paper liners)	Production per hour	Cost per 100 lbs.
1—Man filling at .82 per hour		
1—Man weighing at .82 per hour		
1—Man sewing at .89 per hour		
3—Men handling at .82 per hour		
6—Men in all	4000 lbs.	.125
Multiwall Paper Valve Bags		
1—Man filling and check-weighing at .82 per hour		
3—Men handling at .82 per hour		
4—Men in all	6500 lbs.	.050

### CLASS OF PRODUCT PACKED

CEMENT	FERTILIZER
CHEMICALS	FOOD
FEEDSTUFFS	MISCELLANEOUS

### PRODUCT CHARACTERISTICS

ABRASIVE	GRANULAR
CORROSIVE	HEAVY
DELIQUESCENT	HYGROSCOPIC
FLUFFY	LIGHT
FREE-FLOWING	VISCOUS

ST. REGIS BAG PACKAGING SYSTEMS are made in a variety of capacities, speeds, and manpower requirements to suit specific products and plant layouts. Machines are available in types to meet the special characteristics of a wide range of products, with filling speeds as high as twenty-four 100-lb. bags per minute—with one operator.



# HOW A ST. REGIS PACKAGING SYSTEM SAVES MONEY for a manufacturer having limited\* production

*New Solutions*

**This fifth case history** in a series of **MULTIWALL** success stories, relates the savings effected by a cocoa manufacturing concern through the introduction of St. Regis Multiwall Paper Valve Bags and Machine Packaging. Prior to the installation of the St. Regis Packaging System this company used various types of packages . . . barrels, fibre drums, and open-mouth burlap bags with paper liners. Since their initial trial, about one year ago, St. Regis Multiwall Paper Valve Bags have been found to be the most efficient and economical container for the purposes of this company.

**REDUCED LABOR COSTS:** Prior to adopting the St. Regis Packaging System this company was using one man to fill the bags, one to weigh them, and one to sew them closed. Now, one operator can fill and check-weigh 25 more 100-lb. bags per hour than the former three man crew . . . a labor saving of 66% in filling and weighing.

**INCREASED PRODUCTION:** The original three man filling crew and a three man handling crew were able to handle only 4000-lbs. of cocoa per hour. Since the installation of the St. Regis Packaging System one man is able to supply the three-man handling crew with 6500-lbs. of cocoa for shipment to customers . . . an increase in production of 62½% over the old system.

## AN EXAMPLE IN PACKAGING ARITHMETIC

### QUESTION:

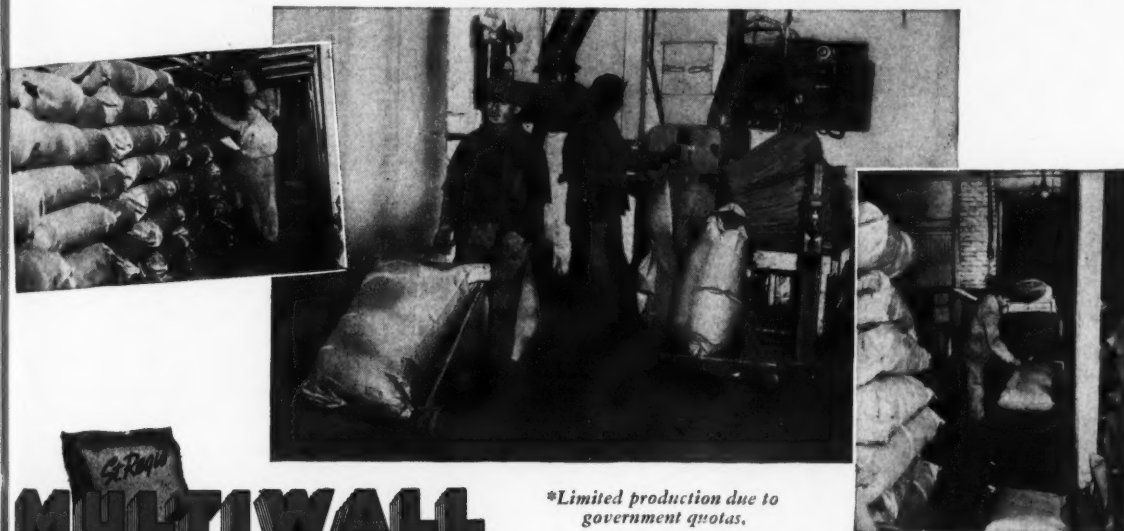
If it took three men one hour to fill, weigh and close 4000-lbs. of cocoa . . . how can one man fill, check-weigh and close 6500-lbs. in an hour?

### ANSWER:

By changing over to a St. Regis Packaging System using a St. Regis Valve Bag Packer to fill Multiwall Paper Valve Bags.

**REDUCED CONTAINER COSTS:** In addition to the product protection afforded by multiple walls of kraft paper and the greater ease of handling Multiwalls, the customer discovered a saving of over 55% in bag cost by using Multiwall Paper Bags instead of Burlap Bags with paper liners.

The figures in this example prove conclusively that St. Regis Packaging Systems are just as applicable to small packaging operations as they are to operations that require batteries of high-speed packers. Call in a St. Regis field representative to advise you on the type packer that will best suit your needs.



*\*Limited production due to government quotas.*

**MULTIWALL**  
ST. REGIS SALES CORPORATION  
(Sales Subsidiary of St. Regis Paper Company)

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.  
BALTIMORE 2: 2601 O'Sullivan Bldg. SAN FRANCISCO 4: 1 Montgomery St.

*Mail this coupon for the complete story*

Birmingham Boston Cleveland Dallas Denver Detroit  
Franklin, Va. Los Angeles Nazareth, Pa. New Orleans  
No. Kansas City, Mo. Oriskany, N. Y. Oswego, N. Y. Seattle Toledo  
IN CANADA: St. Regis Paper Co. (Can.) Ltd., Montreal, Vancouver.

*Without obligation,* please send me full details regarding "Case History" No. 5, outlined above.

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

ADDRESS \_\_\_\_\_

## Scale Removed From Welded Seams

*Machine conveys parts to steel brushing, drying stations and is completely piped for steam, air, water supply and drainage*

**Problem** — Automotive plant substituted stamped and welded tube for the conventional cast and machined rear axle housing to effect savings. However where the two formed halves of the housing were seam welded together, a loose scale formed on the interior. It was feared that this would flake into the lubricant. High pressure sprays would not remove the scale and a mechanical means was sought.

**Solution** — A machine was developed which conveys the axle on a belt and utilizes an indexing arrangement to stop the housing for removal of the scale by a revolving steel brush. At the same time a cleaning solution is fed through and around the brush and on the exterior of the axle. This flushes away scale and foreign matter. The housing is then moved to an air drying operation. The conveyor belt of the machine incorporates fixtures that hold each housing for brushing and drying operations. Operation of the brush into and out of the housing is accomplished by an air cylinder operated in conjunction with the indexing of the belt. The machine is furnished completely piped for steam, air, water supply and drainage.

HOWARD ENGINEERING & MFG. CO., Dept. CP, 2286 Buck St., Cincinnati 14, Ohio.

When inquiring specify CP A4338 — see handy form pages 2-3

★

## Jet Mixer Eases Liquid Handling

*Simple design; no moving parts; very compact*

**Problem** — Easier and more efficient handling of liquids in emulsifying, mixing or blending to produce thorough and complete union of the two liquids involved.

**Solution** — A new liquid mixing eductor which utilizes the jet principle is simple in construction and has no moving parts. In operation, the pressure liquid issues from the jet orifice at high velocity and entrains the secondary liquid. Extreme turbulence, resulting from the impact of the two liquids, produces a thorough and complete union of the liquids. If necessary, close regulation can be obtained by a valve in the pressure liquid line, or the installation of a gear pump, like the maker's, in the suction line. These mixing eductors have many varied uses, from treating water in purification plants or proportioning chemical solutions, to adding liquid foam agents in high pressure fire lines or blending oils for special purposes.

SCHUTTE & KOERTING CO., Dept. CP, 12th & Thompson Sts., Philadelphia, Pa.

When inquiring specify CP A4339 — see handy form pages 2-3

Has a recent use of your equipment solved a difficult chemical plant problem? The equipment may be new or from your standard line. For publication, data should state definitely (1) Nature of operation in question, i.e., cooking, cooling, mixing; (2) Difficulties involved such as control of temperature, product uniformity, lubrication or cleaning; (3) How was equipment used — in standard or modified form? (4) Results, facts on savings in time, labor, increased production or similar cost factors or extent of product improvement. Address the Editors.

CHEMICAL PREVIEW

737 N. Michigan

Chicago 11, Ill.

When inquiring specify CP A4337 . . . see information request blank, pgs. 2-3

# ★ Microfilm Preserves Vital Records

## • Alloy Analyses Made in 40 Seconds

## ▪ Tester Checks 14 Visual Functions



Flofilm camera (left) takes copy up to 14 in. wide in any length; processor (center) uses tubes instead of tanks; projector (right) eliminates need for darkened room

### ★ *Film processed in 55 minutes after negative has been exposed — then viewed in reader*

**M**ODERN microfilming provides a safe, convenient, efficient and space saving method of reproducing important records, graphs, charts, statistics; in fact an almost limitless range of vital information that must be preserved for ready reference. "Flofilm" is a complete, self-contained microfilming process consisting of a camera for microphotographing, a processor for processing the microfilm, within one hour after exposure, right on the premises, and a viewing unit. The latter piece of equipment is all electric and accommodates rolls, strips or mounted microfilm.

The Model 90-01 camera will handle subject matter 14 inches wide by any length. Incorporated into the camera is a positive printer — prints positive film without dark room. The unit has interchangeable lenses — these are prefocused lenses in slip-in turrets providing instant changes for 11.19 or 11, 19, 24 reductions. No extra camera is needed when you wish different reductions whether for one or two rows of images on 35 mm. film. Records are fed and photographed flat. Bulky copy, under 3/16" and

copy with paper clips or wire staples will pass through without difficulty. Light intensity buttons permit easy regulation for best results when photographing dark colored papers or faintly typed letters are involved. Absolute synchronization of record belt and film is maintained in the "Flofilm" camera with synchronous motors, timed by electric power source like an electric clock.

The "Flofilm" processor is surprisingly easy to use. Any employe can learn to process microfilm perfectly within a day. The processor uses tubes instead of tanks, collects film automatically. Short strips of film may be processed easily as well as complete rolls, — merely set the timer for estimated length. The unit works in daylight and completely processes films without being touched by hands. A density controlled developer is used, permitting processing at wide variations of temperatures. Chemicals in pre-measured quantities are furnished with each roll of film ready for use merely by adding water. The finishing, washing and drying processes are exact in performance, the finished film meeting the Bureau of Standards requirements for permanent microfilm.

The projector accommodates 16 or 35 mm. film, either perforated or non-perforated. It is always in focus while microfilm is in motion and is motor operated. It has sufficient light for use in ordinary offices without darkening them. Extension buttons are available for use alongside office machines, making it unnecessary to use a hand

crank. The projector can, of course, be used with rolls, strips or mounted microfilm. Film can be run through at the rate of 100 feet per minute and instantly stopped at any desired image.

An important advantage enjoyed by plants with such equipment is that important and confidential records need never leave the premises. Another is that microfilming offers a solution to the troublesome problem of the increasing demands for storage space for the growing quantities of records that in many cases cannot be discarded because of their technical or legal value. The storage methods that are possible not only provide greater safety but cut reference time. Also, any number of duplicates can be made for use by different departments or factory branches. (The Flofilm system is a product of Flofilm Div., — Diebold, Inc., Canton, Ohio.)

### ● *Direct-reading spectrometer determines up to 14 elements simultaneously, automatically*

**A** RECENTLY perfected direct-reading spectrometer makes alloy analyses in 40 seconds, a fraction of the time required when using the standard spectrograph. The instrument electronically measures the concentration of elements in alloys and automatically records the results. The electronic method of measuring the intensity of spectrum lines eliminates the necessity for photographic and developing equipment and an expensive microphotometer. Errors commonly encountered due to film variation are avoided.



Girls easily operate electronic "analyzer"

CHEMICAL PREVIEW



The entire operation is fully automatic from the time the metal samples are placed in the instrument until the analysis is recorded on paper. In melting, alloying or casting of metals, lower costs are obtained by reducing the time a metal must be kept at temperature while waiting for analytical reports. Accuracy compares most favorably with spectrographic methods. Girl operators can be trained in a single day to use the instrument efficiently. (Developed at Dow Chemical Co., Midland, Mich. and in use for some time in company's magnesium alloying plant.)

■ **Contributes to safety, efficiency and reveals need of eye care; complete test in 4 minutes**



Portable visual checking unit


A NEW vision checking program is announced by American Optical Company, Southbridge, Mass. Detection of the visually unfit under the new program, it is explained, is made with the aid of a newly developed instrument, the AO Sight-Screener, which is portable and can be carried directly into a factory for checking each employee's visual performance. From this information the ophthalmologist or optometrist in charge of the program determines the employee's need for eye care, particularly as it affects his job. If required, a complete eye examination is then provided so that the employee receives the benefits of the necessary professional services essential for developing visual efficiency, safety and general comfort. This plan also includes the development of visual programs designed to meet the specific needs of different industries; promotion of investigations to establish visual placement standards for various job classifications so that an employee's eye capabilities may be better utilized; and recommendations for improving environmental conditions affecting vision, such as poor illumination, glare, smoke and fumes. The program also includes the use of optical aids and other means for increasing visual perception; establishment of eye protection standards for various types of work and advice on the proper eye protection equipment.

**CORROSION** problems encountered in handling acid vapors are readily solved through the use of SK corrosion resistant Steam Jet Vacuum Pumps. Lined with Karbate, Haveg or other corrosion resisting materials, destructive vapors never come in contact with the metal bracing which supplies strength and shock-resistant qualities.

SK High Vacuum Ejectors for corrosive service are made in single and multistages with stoneware, Haveg, rubber lined or plastic lined inter-condensers for absolute vacua as low as 1 m/m of mercury and less.

You can have confidence in SK Corrosion Resistant Ejectors as they are backed by many years' experience in the design and manufacture of jet equipment. The Schutte & Koerting Company have pioneered the development of High Vacuum Ejectors and leadership in this field has been maintained by constant product improvement.

SK engineers are ready to help in solving your vacuum problems. Write today for Bulletin 5-EH which illustrates and describes many types of SK Steam Jet Vacuum Pumps.

corrosive vapors cause no trouble...  
in these  High Vacuum Ejectors



JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS AND FLOW INDICATORS • RADIATION TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS



**SCHUTTE & KOERTING CO.**  
*Manufacturing Engineers*

1173 Thompson Street Philadelphia 22, Pa.

When inquiring specify CP A4340 . . . see information request blank, pgs. 2-3

## Everything From CRANE For Better Welded Piping

**One Standard Of Quality  
One Source Of Supply  
One Responsibility**

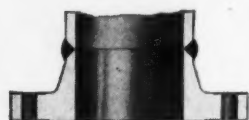
### STEEL BUTT-WELDING FITTINGS



Butt-Welding Tee

In all patterns and sizes up to 24 in. O.D., including reducers and return bends. In standard and extra heavy weights for all services with Grade "A" seamless steel pipe, ASTM Spec. A-106.

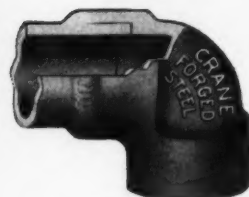
### FORGED STEEL WELDING FLANGES



Cross-Section, Welding-Neck Flange

Welding-neck, and slip-on types for all pressures and temperatures. Also, all-purpose Cranelap swivel flange with welding nipple for stronger, tighter, easier-to-make-up joints. No need to align bolt holes; ideal for odd angle joints.

### STEEL SOCKET-WELDING FITTINGS



Socket-Welding Elbow

For 1/4 to 2 in. lines; have same inside diameter as pipe. Deep socket makes self-aligning joint. Easy to weld properly with no danger of weld metal getting inside. Compact and rugged. Forged of high grade carbon steel in standard and extra strong weights.

**Write for Folder AD-1623**

CRANE CO., 836 S. Michigan Avenue, Chicago 5, Ill.  
Branches and Wholesalers Serving All Industrial Areas

EVERYTHING FROM . . .

# CRANE

FOR EVERY PIPING SYSTEM

VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

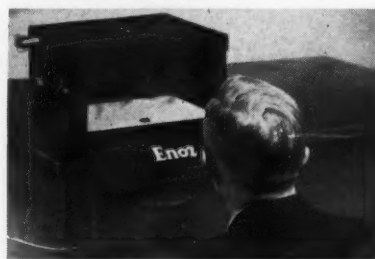
When inquiring specify CP A4341 — see handy form pages 2-3

## Ideas

### Unique Device Gives Visual Proof Of Insecticide Killing Power

*Portable cabinet contains miniature of standard insecticide spray*

Accurate duplication of conditions in all types of plants or rooms is achieved in a compact cabinet unit which provides an ideal means of demonstrating the effectiveness of insecticides. Ex-



act to the tiniest detail the box has a properly sealed working model of a patented vaporizer that is a vital part in the system which is demonstrated by means of this unique device. Built for speedy operation, the unit can be set up for operation in 30 seconds. Specimen insects are dropped into the box through a special opening, the vaporizer is turned on and the entire process of extermination can be viewed through a glass wall. The gray cloud of insecticide may be seen to invade every part of the box's velvet interior. The insecticide demonstrated by means of this "chamber" is tasteless, odorless and harmless to all but insect life. (The device is the development of the Enoz Chemical Co., Chicago 16, Ill.)

### Significance of Design in Motorized Valves

*Comparison of electric versus pneumatic motor operated sliding stem type valves*

Process engineers interested in the use of motorized valves will find valuable data in this comparison. It describes the function of a motorized valve assembly for electric or pneumatic operation — and the types of power units available (1) two position (2) proportional. Details of basic operating principles for electric or pneumatic operation are covered.

Power requirements for various valve sizes and applications are discussed to enable the process engineer to select the correct equipment. An important consideration is valve stem lift for two position and proportional control. Matching valve lift to the motorized unit and to the control application is described in detail.

For proportional control-valve stem travel in relation to pen movement is discussed for pneumatic and electric operation.

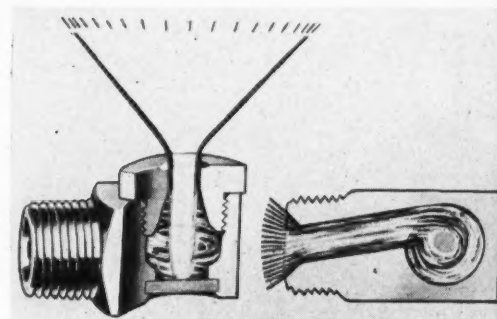
Control valve construction comprising the elements of (1) stuffing box (2) inner port with valve seat, and (3) inner valve or valve plug gives the engineer an opportunity to analyze control valve applications. Consideration is given to temperature and pressure requirements. A brief theoretical treatment covers the basic flow equation which is helpful in analyzing control valve sizes. The uses of single and double port valve bodies are discussed — showing the relative merits of each. Inner valve construction and design are covered for two-position and proportional control. Three basic designs (1) V-port types (2) shaped

plunger types (Ratio plug and throttle plug) and (3) low flow rate types (needle and special types for low flow rates) are included in description of recommended applications.

Materials of construction — valve body design with ratings of standard valve bodies for various temperature and pressure conditions are included in table form. (Condensed from an article in the Brown Instrument Company house organ — *Instrumentation*).

### Tungsten Carbide Insert Increases Spray Nozzle Service Life

*Resists wear of abrasive particles in liquids that are sprayed*



Insert reduces wear from abrasive particles induced by terrific whirling action

A recent design change increases the service life of vortex type spray nozzles. It embodies a tungsten carbide insert in the base of the vortex chamber, which resists the action of abrasive particles that may be mixed in the liquid to be sprayed. The terrific whirling action set up in the vortex chamber of this type of nozzle has, in the past, made them subject to wear resulting from the action of such particles. The use of the tungsten carbide insert effectively reduces wear from this cause. (This spray nozzle feature is a development of Spraying Systems Company, 4037 West Lake St., Chicago 24, Ill.)

### Margarine Colored by Kneading In New Plastic Sealed Package

*Coloring matter contained in capsule in container; plastic film is non-toxic; can be heat sealed*

A new type of package for oleomargarine has recently been developed in Chicago. The outstanding feature is that the design of the package makes it possible to color the margarine without removing it from the container. The basis of the new package is a thermoplastic film which was developed especially for this application. The plastic film is formed into an envelope that is filled with oleo and heat sealed. Before the oleo is placed in the container a capsule containing coloring matter is suspended inside the container. To color the margarine, the capsule is pinched, liberating the color bearing oil. The color is then thoroughly diffused by kneading the plastic container. The kneading operation completed the container may be reshaped, inserted in paper carton and replaced in refrigerator. The Visking Corp. de-



veloped the plastic film and is now manufacturing it for the inventor. The envelope is filled with margarine in a flowing state similar to the packaging of lard. It is foreseen that the package may eventually be used without the paper carton as trade marks and other information could be printed direct on the plastic envelope. (The package is the development of Leo Peters, 2145 Orrington Ave., Evanston, Ill. Patents were obtained in 1945.)

★

## Bulb Flash is the Equivalent of 1/5000th of a Second

*Color quality of light requires no filters for indoor use with daylight color films*

A new repeating flash bulb has recently been announced that can be used for several thousand individual flashes of brilliant daylight quality photographic illumination. It provides a light output of 12,000,000 peak lumens in an instantaneous flash the equivalent of 1/5000th second. Included in the selection of complete "Electroflash" units available is a light weight portable for press use, a small AC portable for general use and a studio model. (The lamps are a development of Sylvania Electric Products, Inc. and available with the "Electroflash" units mentioned from Wabash Photolamp Corp., 335 Carroll St., Brooklyn, N. Y.).

★

## Compact First Aid Heat Unit

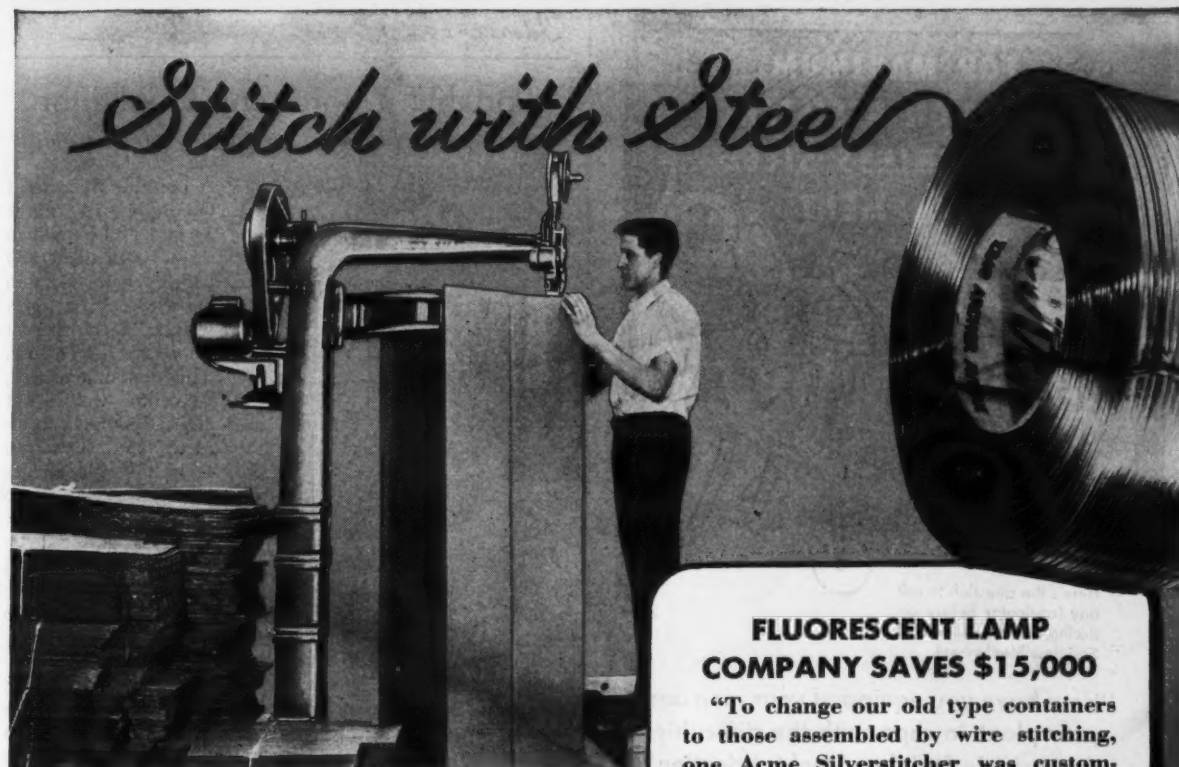
*Uses compound in cartridge; no liquids*



For emergency heat in 60 seconds

A convenient, rapid and safe source of heat for first aid, which requires but one minute to reach top heat, is provided in the "Redi-Heat Block." It consists of a block of lightweight metal with high heat transfer, encased in a special cover. It uses a replaceable heat charge cylinder containing a chemical compound. Upon

being placed in the block it is activated by operating a spring-loaded lever. Each charge provides one hour's heat. No liquids are used to operate the heat block. Wrapped in a towel or blanket it provides proper heat for emergency treatments. "Redi-Heat Block" weighs only 22 ounces and measures 3 1/2" x 4 1/2" x 1 1/2". Each charge is completely sealed and unaffected by heat, moisture, climatic changes, or exposure to weather. (This device is completely described in a bulletin recently issued by the manufacturer — the Mine Safety Appliances Co., Pittsburgh, Pa.).



## USE THE CLOSURE COMBINATION THAT

# SLASHES SEALING COSTS

*SilverStitch* REG. U.S. PAT. OFF.

BOX STITCHING WIRE

- Always uniform in width and gauge
- Makes stronger, surer closures than other methods . . . unaffected by weather
- One-piece, continuous length, 5 and 10 pound coils . . . cuts threading time
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- Operate easily, smoothly, quietly
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- Few moving parts . . . vital ones reversible . . . for lower maintenance costs
- Adjustable, single pedal control

Sealing Shipping Containers by Stitching is Faster, Stronger and More Economical

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ATLANTA

CHICAGO 8

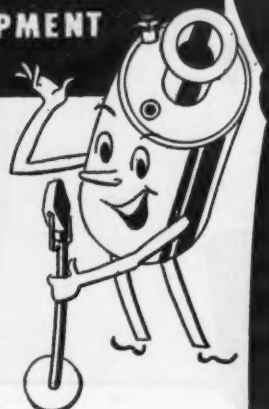
LOS ANGELES 11

—When inquiring specify CP A4342 . . . see information request blank, pgs. 2-3—

## FOR MAXIMUM CORROSION RESISTANCE IN STAINLESS STEEL EQUIPMENT

Ask the  
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Question

Here's the question to ask  
any fabricator before order-  
ing a built-to-blueprint  
Stainless Steel vessel.



"How have you equipped your men and  
your plant to cope with the difficulties  
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Make no mistake about it. Difficulties *do*  
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stainless steel. And the life, the corrosion  
resistance, the efficiency of your processing  
equipment depend on how well prepared  
your fabricator is to solve these produc-  
tion problems.

S. Blickman, Inc. has worked with  
stainless steel since its appearance as an  
alloy. We have trained our men, and de-  
signed our plant to safeguard the qualities  
of the metal at every stage in fabrication.  
To be sure of getting maximum corrosion  
resistance when you specify stainless steel  
for a processing vessel — consult with us.

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Guards Alloys in Fabrication

SEND FOR THIS  
VALUABLE BOOK  
A request on your letter-  
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guide, "What to Look  
For When You Specify  
Stainless Steel for Your  
Processing Equipment."



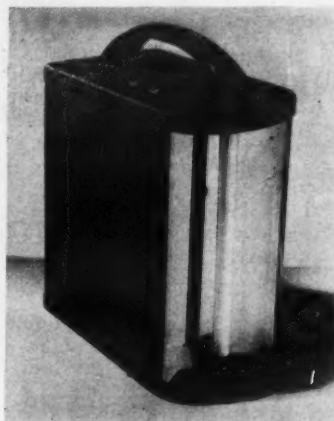
CORROSION RESISTANT PROCESSING EQUIPMENT



When inquiring specify CP A4343 — see handy form pages 2-3

## Ideas

### Portable Fluorescent Floodlight Uses 40 gauge Lumarith plastic for curved window



Fluorescent Floodlight

bright enough to read by and has a 1000 hour life. Three switches control the lighting, one to turn it on and off, one which is a momentary control to start the light and a booster switch to assure full battery utilization. (Photo by courtesy of Celanese Plastics Corp. The "Totelite" is manufactured by Paramount Industries, Inc., 111 Broadway, New York, N. Y.)

A portable fluorescent floodlight is now available which throws a brilliant 180 degree half horizon beam through a light-weight, transparent Lumarith window. This new unit named, "Totelite" weighs but eight pounds complete with batteries. It is only 9 1/4 inches high; 8 inches deep and 4 1/2 inches wide. Light is powered by two easily replaced 45 v. batteries. The fluorescent bulb

### Trend to Display Window Bottling Being Resumed in Post War Plans

*Both de luxe and standard equipment used with  
good effect in variety of layouts*

The trend toward moving the manufacture of bottled beverages into the display window began ten years ago. The war brought an interruption to this but all signs point to its resumption in the postwar period. Size is not a factor in the advantages of display window bottling. The plant of modest capacity gains as do the large ones. While de luxe equipment is desirable in such applications, excellent effects are obtained with standard equipment. One plan of installation provides for the laying out of multiple bottling lines so that fillers and beverage mixers are directly before the display window. For the bottler who uses more than one type bottle there is the advantage that each bottling line can be equipped for operating one style bottle, eliminating the necessity of frequent bottle equipment replacements and height adjustments of filling and mixing units. A display window installation layout for plant located at an intersection offers great possibilities. The interesting bottle washer-discharge operation may be brought close to the window. De luxe equipment may be used for the display with standard units in other equipment behind the partition. One of the most popular layouts for multiple bottling line window display plants is the following. The discharge end of the bottle washer, the filler operation and the inspection operation are all immediately in front of the display windows but the mixer operation is turned away from the front windows. For corner locations, this is an ideal location. It provides great space economy and greatest economy of conveyor and at the same time all the interesting phases of the bottling operations are in full view from the two windows. Another plan is built around

## HAVE YOU ANY OF THESE FILTRATION PROBLEMS?

CLARIFICATION  
DECOLORIZING  
PURIFICATION  
CAKE RECOVERY  
CAKE WASHING  
CAKE DRYING  
THICKENING  
REDISSOLVING  
BACK WASHING

Regardless of physical or chemical nature of the material, the required pressure and temperature at which it must be processed, its possible effect on the equipment used, or the quantity to be handled — do you have one or more of the processes listed here that need doing — *right?* If so, the Shriver Filter Press can do it for you at from a few to many thousands of gallons per hour. The versatility and general economic suitability of the Shriver Filter Press in your plant is well worth investigating. Write for Catalog No. 45. T. Shriver & Company, Inc., 846 Hamilton St., Harrison, N. J.



Shriver Filter Press, side feed, closed delivery, with plates and frames of cast nickel iron.

## Shriver FILTER PRESSES

When inquiring specify CP A4344 — see handy form pages 2-3

### Talk About Simplicity and Dependability at Low Cost

Johnson Boiler  
Water Level Control  
Gives You All 3

#### 1. Simplicity

Electrical operation reduces the Johnson Automatic Boiler Water Level Control to only a few simple parts—no moving parts to jam or clog. See sectional view.

#### 2. Dependability

Stationary electrodes use the boiler water level itself to make and break circuit to an electric relay, which in turn opens make-up valve, controls steam or electric pump, or operates low water alarm or cut-off. Operation is as dependable as the flow of electricity.

#### 3. Low Cost

Ingenious design and construction, embodying only a few stationary parts give you low cost protection against low water hazard. No water piping needed, electrode holder can be mounted right on water column.

For Pressures  
Up to 300 lbs.

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**The Johnson Corporation**

826 WOOD STREET • THREE RIVERS, MICHIGAN

When inquiring specify CP A4345 — see handy form pages 2-3

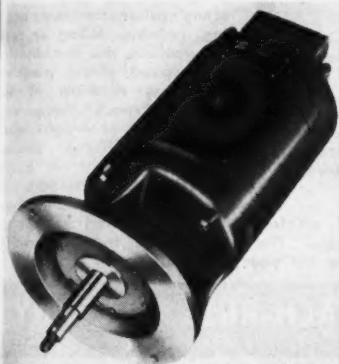


a bay window type of installation with glass on three sides. Among the important considerations in planning bottling rooms are location of bottle and case conveyors, location of supply lines: electrical supply line for each machine, water supply lines, carbonic acid gas supply for saturator, syrup supply for filling equipment, supply chutes for crowning equipment. (Digested from "Looking Ahead With the Bottling Industry" — Crown Cork & Seal Co., (Machinery Div.), Baltimore, Md.)

★

## New Industrial Gear-Head Motor

*Smaller, lighter, more compact than ungeared motor*



Small gear motor

A new gear motor indicates how aircraft engineering principles can be applied to the advancement of industrial electrical equipment. The motor was developed for an homogenizer application, where space was limited and where 5 HP had to be delivered at 8000 rpm, using commercially available 3 phase, 60 cycle, 220 volts power.

An organization supplying electrical parts to the aviation industry, designed and built for the application a special, fan-cooled, open type, two pole 3600 rpm motor, with output speed stepped up to 8000 rpm by single reduction helical gears in a sealed gear box. This motor is smaller, lighter and more compact than the conventional ungeared motor. The same design with changed gear specifications, will be suitable for a variety of applications requiring output speeds not ordinarily obtainable with commercial current. (Electrical Engineering & Manufacturing Corp., 4606 W. Jefferson Blvd., Los Angeles, Cal.).

★

## Standardized Cylinder in Many Diameters, Stroke Lengths

*Lends itself to universal mounting applications*

An advance in design and construction of cylinders provides a standardized cylinder for operation by air, oil or water which lends itself to almost universal mounting applications. Cylinders in the past have been built in a number of types, models, sizes, and in an infinite variety of length. This new cylinder is completely standardized, is available off the shelf in an assortment of diameters, and stroke lengths that meet practically all requirements. A bulletin 453 describes cylinders for heavy duty applications. These cylinders are a development of the Engineering Products Co., Los Angeles, California.



Cylinder for air, oil



## Meet the Man Who Makes a Virtue of a ONE-TRACK MIND

Ordinarily, it is no compliment to say a man has a "one-track" mind. But in the special sense in which we apply the term to S-A engineers, it describes a singleness of purpose that saves American industry countless thousands of dollars on bulk material handling operations.

It describes an ability to approach any problem with but one thought in mind: the development of a system that will convey the *right* volume to the *right*

place, at the *lowest* cost per ton. S-A engineers are aided in this task by an unrestricted choice of equipment—a complete line of conveyors and accessories designed and built by the company that for 45 years has led the field with new units and new methods.

If you want the man whose "one-track mind" can help you achieve utmost material handling efficiency, talk to an S-A engineer.



# STEPHENS-ADAMSON

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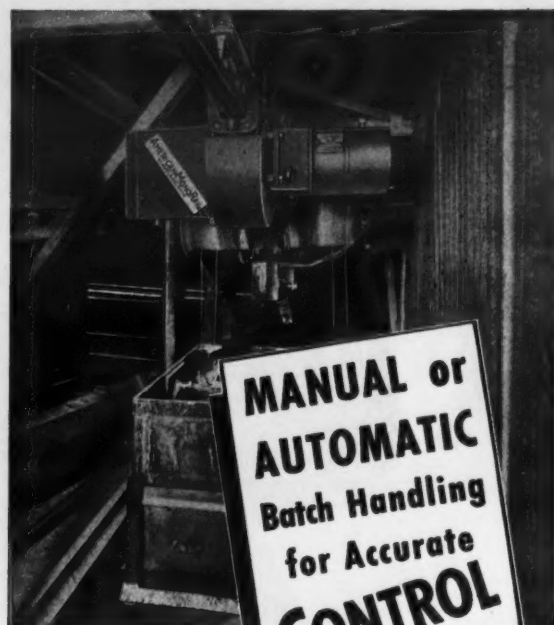
MFG. CO.

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*Designers and Manufacturers of All Types of*

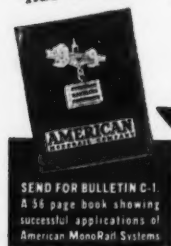
**BULK MATERIAL HANDLING EQUIPMENT**

When inquiring specify CP A4346 . . . see information request blank, pgs. 2-3



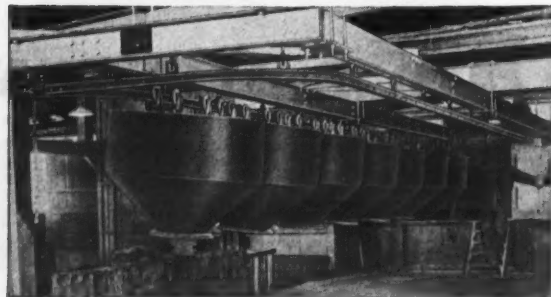
## American MONORAIL Equipment

furnishes an ideal system for handling batch between process. It assures control using scales in the system or accompanying carriers. Jolt-free inside will not cause segregation of particles, an important feature when batch must be uniformly mixed.



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Write Today!

**THE AMERICAN MONORAIL CO.**  
13109 Athens Ave. Cleveland 7, Ohio



When inquiring specify CP A4347 — see handy form pages 2-3

## Ideas

### Cough Syrup on a Stick Eases Tots' Tickling Throats

*Traditional "all-day" sucker in a new role*



Medicated lollipops for Kids' coughs achieved otherwise. The "Suckers" are pleasantly flavored with wild cherry. This new product is being distributed only through the drug trade and samples have been distributed to the medical profession in various areas. ("Kiddie Kof" Suckers are made by Sharp & Shearer, Reading, Penna.)

The traditional "all-day" sucker of blessed childhood memory now emerges in a new form and not as a confection but as a medicated product. These novel lollipops, known as "Kiddie Kof" Suckers are designed for children of two or three years or older. Their gradual dissolving promotes prolonged contact over affected areas, thus tending to give a greater degree of relief than might be

### Imide-Modified Alkyd Resin

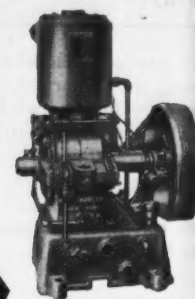
*May mark expansion of alkyds into new fields*

Preparation of a new imide-modified alkyd resin may mark an expansion of alkyds into relatively new fields. These resins are of particular value in low temperature bakes or air drying and give hard finishes under conditions where melamine finishes do not harden. A report describes the replacement of part of the ester linkages in an alkyd resin with amidic linkages by replacing part or all of the glycerine with glycerine amine. These imide alkyds, which can be prepared through substitution of glyceryl amine for part of the glycerine can be made with a very low fatty acid content and low acid numbers. Available data covers the preparation of the imide modified resins and the film forming properties of such resins. Because short oil length imide resins can be made without gelation, and with low acid numbers by this process, fast drying films can be prepared.

A method of calculation has been devised for the prediction of the acid number of an alkyd resin from its formula and for reducing the acid number of an alkyd to any desired value by the use of N-hydroxyl imide. The principle of the preparation of imide modified alkyds appears to be that the acid number is reduced without the loss of hardness, and it is possible that non-imide modifiers could be used to effect the same results. In the work described, the glyceryl amine was introduced as the glyceryl phthalimide, with results equivalent to those made from the fatty acid amides. The net effect of the use of glyceryl phthalimide seems to be that it controls or prevents gelation by preventing or reducing cross linking, and yet the hardness of the resin is not reduced. It has been found that any glyceryl phthalate resin of a given oil content, no matter whether it is a regular alkyd or an imide alkyd,

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Higher Vacuum  
Faster Evacuation  
Better Efficiency  
Low Power Cost  
Long Service Life



Built with automatic lubricating and cooling systems in capacities from 15 to 750 c.f.m., wet or dry vacuum, in the low micron range. Rugged construction — of corrosion-resistant metals where required, complete, compact.

Whether it's for distillation, evaporation, drying, impregnating or any of the many other vacuum processing, refining, filling or testing operations, the combination of slow speed, direct, positive vibrationless rotation of the Beach-Russ Type RP Pump, with its dependable seal-tight lubrication, means higher vacuum in your equipment, a better product and profit for you. No other pump equals its mechanical efficiency over as broad a vacuum range. The best in the industry use it. Why not your plant?

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Catalog  
No. 80

**BEACH-RUSS COMPANY**

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NEW YORK 7, N. Y.

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## Simplest load-handling methods are always the best methods

"Simplest and best" means *most economical*, too! In one plant, the material was flax in 150-pound bales—slippery stuff, awkward to manage.

Elwell-Parker supplied an Electric Truck that speeds 13-bale Master Units *with safety*—eliminating waste motion—holding costs down—keeping materials moving to support 24-hour plant operations.

The E-P Man will help effect keen, modern materials-handling ideas at your Plant, through Electric Trucks and Cranes engineered and designed *especially to lower your costs*. Better send for him today.

The Elwell-Parker Electric Company, 4239 St. Clair Avenue, Cleveland 14, Ohio.

**ELWELL-PARKER**  
**POWER INDUSTRIAL TRUCKS**

Established 1893

When inquiring specify CP A4349 — see handy form pages 2-3



tends to have a fixed hardness corresponding to the oil length. It is to be noted that here it is possible to combine low oil length and low acid number by this process. (Summarized from report of paper by Dr. Robert N. DuPuis of Glycerine Producers' Assn. Laboratories.)

★

## Coating Prevents Leakage From Broken Acid Bottles

*Coating is transparent but may be colored*

Tough nitrocellulose plastic coated bottles in which corrosive liquids can be shipped or stored without danger of the liquid leaking out if the bottle is broken, appear to be the answer to a long standing problem. The coating provides a protective armor around the bottle and holds its shape even though the glass underneath is shattered. This plastic coating is so tough that when test bottles containing sulphuric acid were thrown against a metal wall with sufficient force to break all the glass, the coating retained its shape and prevented the sulphuric acid from seeping through. The coating has other advantages. It is transparent and can be colored with dyes for identification purposes and it protects the label on the bottle, which if not covered frequently becomes illegible through handling and wear and tear. Also, the bottles can be washed without affecting the qualities of the coating.

The nitrocellulose coated bottles were developed by the Detroit Macoid Corp., Detroit, Mich., during the war. At the present time one gallon bottles are being coated. The bottles are dipped into a solution based on Hercules nitrocellulose. When the excessive plastic has dripped off an even film of from 20 to 25 thousandths of an inch remains on the bottle. (Summarized from release of Hercules Powder Co., Wilmington, Del.)

★

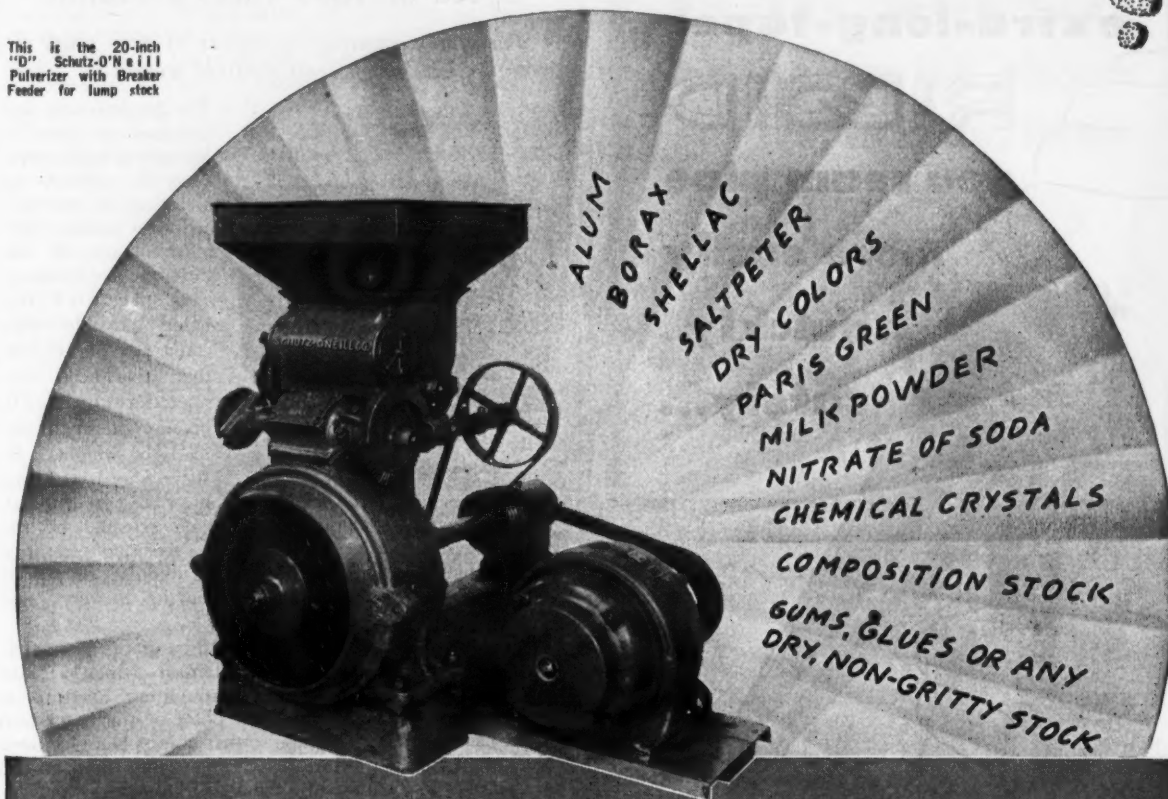
## Elastic Nylon Properties Close To Those of Natural Rubber

*Elastic recovery of one type 95-99%*

Elastic nylon, newest addition to the growing family of polyamides, has been made on an experimental scale by chemists of E. I. du Pont de Nemours & Co., Textile fibers made from certain of these new nylons, technically known as N — substituted polyamides, have elastic properties approaching those of rubber. The elastic properties of the N — substituted polyamides can be varied over a rather wide range, depending upon the molecular structure of the compound. One type, referred to as isobutyl 610, can be stretched 250-400 percent, in comparison with 600-1100 percent for rubber. The elastic recovery of this nylon was of the order of 95-99%, in comparison with 100% for rubber. Nylon yarn of this type now used in hosiery has the highest combination of strength and elasticity of any fiber now in commercial use and has elongation of only 15-25%. The "elastic modulus" of the N — substituted polyamide is about twenty times that of rubber fiber, while the tensile strength of the elastic nylon is about five times as great. It must be emphasized that the new N — substituted polyamides represent a laboratory development and are not to be construed as even possible commercial applications. The materials described are not now commercially available. (Summarized from E. I. du Pont de Nemours & Co. release regarding paper presented at American Chemical Society Meeting, Atlantic City.)

# WHAT DO YOU PULVERIZE?

This is the 20-inch "D" Schutz-O'Neill Pulverizer with Breaker Feeder for lump stock

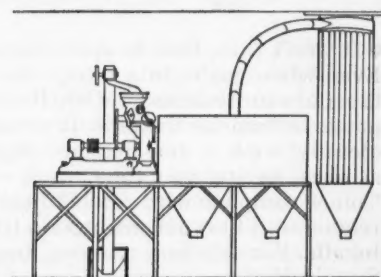


*You Can do it Finer, Faster and Better*

## with the SCHUTZ-O'NEILL PULVERIZER

The Schutz-O'Neill Pulverizer is a centrifugal air force impact pulverizer for continuous or batch operation. For extremely fine grinding and uniformity, the principle of centrifugal impact when carried by the air stream has never been surpassed. The product is floated off on air — there is no screen to clog or wear out. Thousands of Schutz-O'Neill Pulverizers have proven their sturdiness, long life, low power consumption, high output and ease of operation. With a range of sizes in several styles, any dry, grindable stock can be efficiently pulverized.

**CONSULT US ON YOUR PULVERIZING PROBLEMS.** Write us your requirements, products to be pulverized, output desired, and send a sample. This in no way obligates you. Literature sent on request.



MILL PLAN No. 40 shows pulverizer with horizontal discharge directly into receiving chamber. One of many possible set-ups.



**SCHUTZ-O'NEILL CO.**

DIVISION OF PARTEN MACHINERY CO.

PULVERIZERS • BREAKER MILLS • ROLLER MILLS • BURR MILLS • HAMMER MILLS

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When inquiring specify CP A4350 . . . see information request blank, pgs. 2-3

**With this  
extra-long-taper  
RIGID  
you ream pipe  
more easily  
..quickly..  
safely...**



● It won't thin, flare or split pipe or conduit. Even when you're in a hurry, the extra long taper of your **RIGID** LonGrip Reamer doesn't gouge or damage the pipe. It whisks out burr cleanly with a few feather-light ratchet strokes, saving you time, work — and pipe. Comes complete with ratchet handle — or the reamer unit fits your **RIGID** No. 00R threader handle. For safe easy reaming, buy it at your Supply House.

Reamer unit  
fits No. 00R ratchet  
threader handle.



**RIGID**  
**WORK-SAVER PIPE TOOLS**  
THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

When inquiring specify CP A4351 — see handy form pages 2-3

## Ideas

### "Shadowcount" Instrument has Speed of 1000 Units a Minute

*Facilitates counting of objects of very small  
size or exceedingly light weight*



"Shadowcount" Unit

Of the types of Shadowcounts any object may be counted. This method of counting was made possible by the development of a very high speed, sensitive electronic circuit which responds not only to the impulses of rapidly moving objects but also to those moving in very rapid succession.

The Shadowcount combines the use of a photoelectric circuit with an optical system in which a short light beam is sharply focused through an aperture in a steel tube or guide. The focal point of the beam falls in the exact center of the tube so that objects being counted break the beam as they are fed through from the open end of the tube, thus eliminating the use of mechanical contacts. The tube is placed in a perpendicular position so that pieces being counted fall through by the force of gravity. Types S2 and A2 are equipped with a 2 inch guide tube which will accommodate objects ranging in size from 1/32 inch to 1 7/8 inch cross sectional dimension. Since the focal point of the light in the center of the guidetube must be broken, an insert is required for objects smaller than 1 inch cross sectional dimension. The insert is a small funnel shaped part, the ID of which is drilled or shaped slightly larger than the piece being counted. It can be interchanged in a matter of seconds. Types S4 and A4 incorporate the same principle as S2 and A2 except that it is equipped with a 4 inch guide tube the insert being required for objects less than 2 inches. The maximum counting speed is 1000 per minute, at this rate however, it is usually necessary to use a spacing device which will assure that all pieces are spaced. When using Types A2, A4 or EX, spacing is not always necessary as the size and shape of the piece may allow the beam to be set off center and thus pieces become automatically spaced, even though they contact each other. It is desirable in most cases to place the Shadowcount in the production lines where it will be the most economically beneficial. When it is possible the instrument should be placed at a processing machine where objects as they are made or processed can fall directly or by way of a chute into the guide tube. In cases where objects are manually held while being processed or manually removed from the processing machine the Shadowcount can be set over a container or in any location where it is convenient for the operator to toss the parts through. The inspection bench is also an advantageous location for the counter. After the inspector has made his inspection he needs merely to throw the piece into a hole cut in his bench under which

The Shadowcount was designed to give to industry a high speed, accurate method of actuating a commercial type counter with a minimum of additional engineering. This method has made possible the counting of objects that have been considered uncountable because of small size or light weight. By the proper use of one



HIGHER WAGES will increase the cost of production unless the productive capacity per man is increased in proportion. Modern handling equipment enables fewer men to accomplish more work in less time, provides the means to maintain production costs at normal levels.

**TAKE IT UP WITH  
TOWMOTOR  
THE ONE-MAN-GANG**

TOWMOTOR CORPORATION DIV. 7, 1226 EAST 152nd ST.  
CLEVELAND 10, OHIO

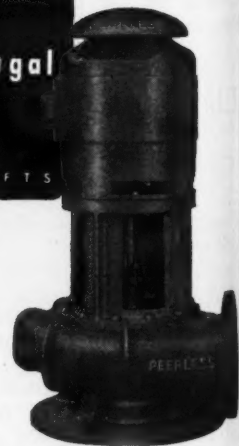
When inquiring specify CP A4352 — see handy form pages 2-3

### Peerless Vertical Centrifugal Pumps

FOR SHALLOW LIFTS

**100 to 5000 g. p. m.  
15 to 100 foot head**

● Peerless Vertical Centrifugal Pumps are intended for general pumping purposes. ● They are built in both the Close-Coupled and Submerged types. The Submerged type is furnished with either top or bottom suction. Direct connected electric motor, steam turbine or engine drive, either direct or through right angle gear. ● These pumps are successfully applied to sumps or drainage or wherever it is necessary to move large quantities of water at comparatively low lift. ● Installation space is reduced to a minimum, of paramount importance in industrial installations... Extremely economical to operate.



Close-Coupled Type

### PEERLESS PUMPS

PEERLESS PUMP  
DIVISION  
Food Machinery Corp.



FACTORIES  
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## Back Again



- ✓ Tough-Wear
- ✓ Liquid-Proof

## Stanzails

Neoprene-Coated Work Gloves

● Safety red — for hands near moving machines. Stout fabric heavily coated with milled (not latex) DuPont neoprene, which assures more hard wear, won't crack or peel, protects from and resists damage by oils, acids, caustics, lasts longer. Curved fingers for more comfort, easier work. Standard size, knit (R-26) or gauntlet (R-27) wrist. Top quality for industrial service, more for your money. Ask your supplier for Stanzails — or write for catalog showing full line of all neoprene and neoprene-fabric Stanzails.



Synthetic Rubber Division

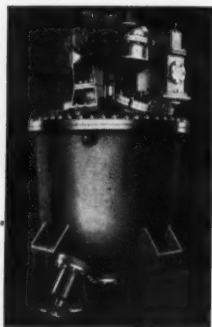
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OVER 25 YEARS OF QUALITY GLOVE MAKING

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## DOPP KETTLES

Clean heating surfaces speed production in mixing operations.



Dopp Kettles, equipped with the Dopp Agitator that "cleans as it mixes", improve your product and cut production time.

## BUFLOVAK EQUIPMENT

Division of Blaw-Knox Co.  
1645 Fillmore Ave., Buffalo 11, N.Y.

When inquiring specify CP A4355 — see handy form pages 2-3

## Ideas

the Shadowcount is placed. In these cases hoppers and spacers are not required. In stock room adaptations or in counting objects where a mass of parts are accumulated the Shadowcount can be used to best advantage by attaching it to a hopper which will feed the parts at a rapid rate of speed. Some method of spacing is required for this type of counting to insure accuracy. As we have mentioned before the electronic circuit in the Shadowcount is very fast and sensitive and will respond to objects moving at a great speed and in very rapid succession. A great percentage of parts falling through the instrument will, by the force of gravity, space themselves but there is a tendency for an occasional adherence of one part to another. If this occurs the two pieces will count as one. Consequently, it is necessary to make sure that there is some separation. The Shadowcount Types A2 and A4 were designed with an adjustable optical system so that objects approximately 1" or over can be counted without spacing. Also objects such as washers can be accurately counted. The light beam can be moved in a horizontal plane which is perpendicular to the path of the object. The optical system is set so that the focal point interrupts the periphery of the part at a point slightly less than the tangent to the perpendicular. For applications where mounting space is limited or where the parts to be counted are too fragile to be dropped through the feed tube, the Type EX may be used. This unit is designed with an external phototube and light source-optical system which are contained in separate housings and are connected to the Shadowcount through shielded rubber covered wire. The focal distance can be adjusted so that the focal point is equal distant between the source and phototube regardless of the distance between them, thus making it possible to count very small objects. (Illustrated Types S2 and A2 - Cabinet size less funnel 10" x 12" x 9"). Spacing and hopping equipment can be supplied for certain spherical objects. Prices upon request. Consult our Engineering Department. When writing for information regarding special counting problems please be specific as to requirements. Special quotations given for special adaptations. The type OC Shadowcount is ideal for actuating a predetermined counter. (The Autotron Co., Dept. CP, Danville, Ill.)

★

## Plastics Industry Foresees Wide Production of Large Objects

*Boats and furniture of particular interest*

The plastics industry is thrusting aside mechanical limitations which have restricted it to the production of relatively small items. Boats, furniture, wall panels, luggage and full sized radio cabinets are typical of the products that are in the offing as production items. These will be made from newly-developed plastic resins impregnating either cloth, paper or fibre in impression molding. Some companies are working on plastic boats, utilizing experience gained in the wartime production of jettisonable aircraft fuel tanks. These will be one-piece units. Procedure in making such a boat might be as follows. Take a form resembling an ordinary boat hull and tailor a cloth "suit" and fit it over the hull. Impregnate the cloth with resin. Slip rubber bag over assembly, apply pressure. Bake well. Possibilities are held in the field of luggage. The furniture field is one that is receiving particular attention. Here the most likely items include dinette tables, side tables, small book cases and hampers. (Data from release of Monsanto Chemical Co., St. Louis, Mo.)

**Thread pipe faster, with less bother, with these smart, handy, little**

**RIGID**

**RATCHET**

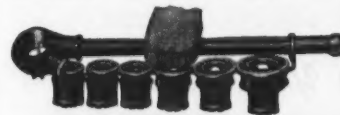
**THREADERS**

**Nos. 00R and 111R**

Heads snap in either side... can't fall out



● With one of these efficient and tough little steel-and-malleable threaders at hand, pipe from 1/8" to 1 1/4" is quickly perfectly threaded. Die heads with heat-treated tool-steel chasers snap in from either side, can't fall out. No special dies are needed for close-to-wall threads. Smooth internal ratchet. No. 00R, 1/8" to 1"; No. 111R, 1/8" to 1 1/4." Handy, fast, durable — try one and you understand their growing popularity. Ask your Supply House.

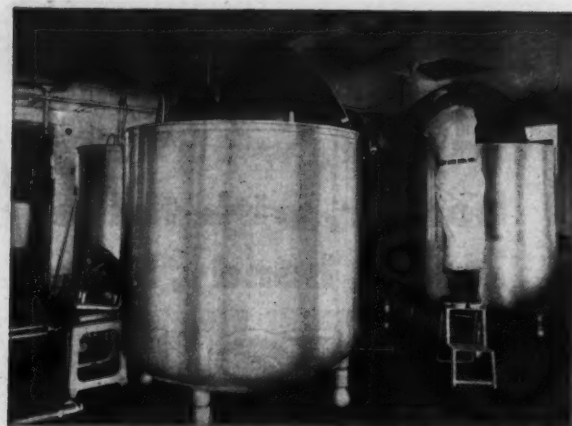


Free handy carrier for any group of sizes.

**RIGID**

**WORK-SAVER PIPE TOOLS**  
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## The John Van Range Co. *Equipment of* **STAINLESS STEEL**

Monel Metal Aluminum  
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**CHEMICAL and PROCESSING  
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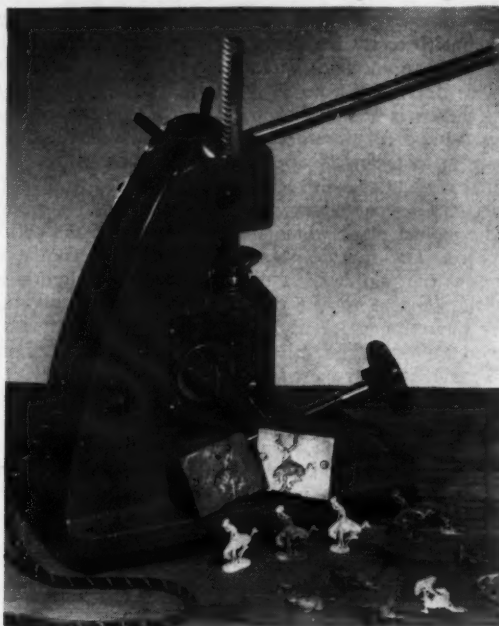
When inquiring specify CP A4357 — see handy form pages 2-3

## Ideas

### Miniature High Pressure Plastic Injection Molding Press

*Molds 2/10 oz. per shot*

Primarily developed as a toy — this miniature high pressure injection molding press has possible uses in the laboratory and for color and die checking. The plasticor employs the principles used on large industrial machines — but built on a small scale. Die clamp, heating element



Plasticor and 2 x 2½" mold in which small figures are cast

with rheostat, cylinder, ram and hand operating lever are all in a compact assembly which weighs less than 17 lbs. Stock dies, available with the machine, permit the molding of a wide variety of figures such as cow-boys . . . Indians . . . planes . . . model parts . . . novelties . . . etc. The Plasticor injects two-tenths of an ounce of plastic per shot. Production plastic molders will use it for checking colors and small die testing prior to production runs. At the Plastics Show, where the Plasticor was exhibited and operated in the Tennessee Eastman Corporation booth, it created unusual interest. The machine is manufactured by the N. R. K. Mfg. and Engineering Co., Chicago, Ill.

★

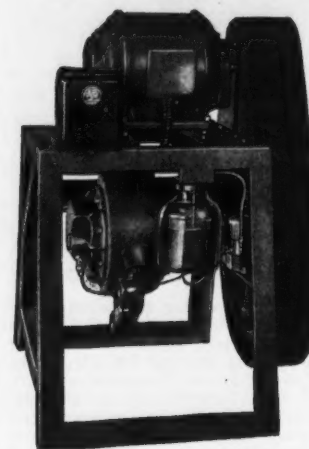
### Unique Manhole Cover Support

*Permits covers to be manipulated, withdrawn through opening, swing aside on extension of vessel*

The introduction of a simple but adequate support device, in conjunction with standard type elliptical manway covers permits such covers to be manipulated and withdrawn through the opening, and swing aside on the extension of the vessel, in contrast to ordinary support which swings the cover inward only. These manway covers are available in standard sizes for 10" x 15" to 18" x 24" and are used wherever manways are required for frequent access. They can be made in carbon and stainless steels. (Lenape Hydraulic Pressing & Forging Co., P. O. Box 27, West Chester, Pa.)

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A HALF CENTURY OF SERVICE  
TO SCIENCE AND INDUSTRY

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**EDMONT Neoprene-Coated work gloves** are made on carefully formed molds that shape them to the hand — no breaking in — they're comfortable from the start. Add the soft napped feel of their fabric lining, the ease with which they can be put on and taken off and you see why EDMONTS are the favorite work gloves in leading industries from coast to coast. ASK YOUR DEALER.



TRADE MARK REG. U.S. PAT. OFF.

**Fabric-Lined  
RUBBER GLOVES**

501 ORANGE ST. . . . COSHOCTON, OHIO

When inquiring specify CP A4359 — see handy form pages 2-3



## Gas Turbine Plant Operates at Gas Temperature of 1350° F.

*Unit embodies innovations in cooling methods permitting safe operation at high inlet temperatures*

Successful operation at a gas temperature of 1350 degrees F. has been accomplished in a series of successively increasing temperature tests on an Allis-Chalmers experimental gas turbine plant installed in the U. S. Naval Engineering Experiment Station at Annapolis, Maryland. Designed and built for eventual operation with hot gas at a temperature of 1500 degrees F., the 3500 HP unit is the first large multi-stage gas turbine for continuous power generation at high efficiency operated successively at such high temperature.

Although this gas turbine has been developed as a Navy project, its basic elements have characteristics suitable for both land and marine practice. Numerous mechanical, metallurgical and fluid flow problems so prominent in gas turbine development have been overcome and much has been determined about operating characteristics of the turbine and compressor in completed stages of the comprehensive test program. The multi-stage turbines in this installation are designed for high efficiency. The Annapolis unit embodies innovations in cooling methods, permitting the multi-stage turbines to operate safely at high inlet temperature by avoiding the undue weakening effect of the high temperature on the materials used for rotating parts. The gas turbine plant is arranged with two turbines operating in parallel, one turbine supplying the power required to drive the compressor, the second turbine furnishing the power necessary to satisfy the requirements of the driven machine or dynamometer. The compressor unit operates at a speed commensurate with the lowest possible fuel consumption. Fresh air enters the compressor at 40,000 cfm and is discharged at a pressure of 45 pounds per square inch to the heat exchanger where it picks up heat from the turbine exhaust gases. The heated air then passes through two separately oil fired combustion chambers where it is further heated to the desired inlet temperatures. The gases then expand in two multi-stage turbines, one of which supplies the power to drive the compressor, the other furnishing external shaft power.

The development forecasts the practical and advantageous application of gas turbines in several fields such as their service as electric power generation prime movers. (Allis-Chalmers, Milwaukee, Wis.)

★

## Slide Rule Chart Simplifies the Selection of Stainless Tubing

*Conveniently presents actual figures on constants*

A new slide rule type of chart provides engineers and designers, in a most convenient form, actual figures on velocity constants and mass velocity constants. It assures easy and accurate calculations on jobs where stainless steel tubing is used. Engineers are not thus obliged to consult several tables and spend considerable time in figuring out the necessary constants. The chart also contains data on areas of diameters of tubes of various sizes, as well as information on pressures and a table of weights for stainless tubing. In addition, users will find data on the physical properties of the principal grades of this manufacturer's stainless tubing, together with specifications showing the various sizes and gauges in which the tubing is made. (Carpenter Steel Co., Kenilworth, N. J.)

MAY - JUNE, 1946

# NO—all screw conveyors are NOT alike... and here's why:



Above: Inclined Link-Belt screw conveyor delivering copra and sesame cake to crusher. Trough cover plate removed for photographing.

Different types of screw conveyors are required for different jobs. That's why Link-Belt offers various kinds shown below, and others designed for special installations.

There are many types of screw conveyors in the Link-Belt line, because just any screw conveyor cannot do an efficient job. In specifying the conveyor, a Link-Belt Materials Handling Engineer considers the kind of material to be carried; the volume required; the capacity, speed, angle and installation of the conveyor; whether the conveyor is used to transport materials, or as a mixer, or as a feeder to supply a predetermined amount.

Link-Belt, as Materials Handling Headquarters, offers the most progressive engineering service, and is always abreast of the latest developments and improvements in conveying methods.

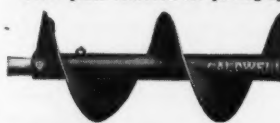
### Get this Data Book 1289

Details on many types of Link-Belt Screw Conveyors are found in this 128-page book. Write today for your copy.



### LINK-BELT COMPANY

Chicago 8, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities.



HELICOID

One piece continuous rolled flight, secured to shaft by welding and formed steel reinforcing lugs. Large pipe gives greater torque; no laps or rivets to catch dirt or to wear out. Tapered cross section for greater strength.



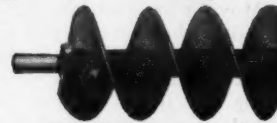
SECTIONAL FLIGHT

Individual flights are riveted together, and secured to pipe or shaft with forged steel lugs. Easy to repair when necessary, by renewing sections; special sizes, types and materials cost less to make in this type.



CAST FLIGHT

Shaft and flights are cast in one piece for each length, assuring a true spiral and smooth flight surface. Available in cast iron, or in cast steel which can be heat treated for resistance to abrasion.



DOUBLE FLIGHT

For smoother flow of certain materials, double or triple flight conveyors may be supplied, in standard or even in short pitch screws. Used for certain materials, and particularly as feeders requiring even flow.



MIXING PADDLES

Many types of paddles are available for use as continuous or batch mixers for light or heavy, dry, damp, or wet materials. Degree of mixing can be controlled by paddle design and setting.



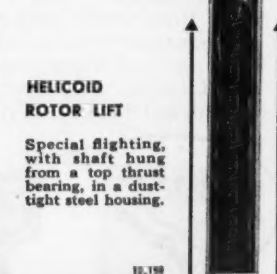
RIBBON

For sticky materials, such as molasses, sugar, hot tar, asphalt, etc. Clear space between ribbon flights and shaft prevents build-up where flights join shaft. Multiple ribbons are supplied for mixing.



STAINLESS STEEL, ETC.

For corrosion and heat resistance in food and chemical industries, Link-Belt offers various stainless steels, aluminum, copper, bronze, Monel metal, etc., in various designs and types.

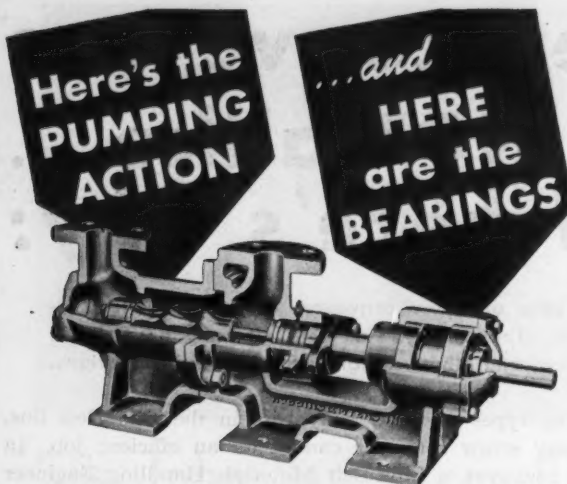


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Special flighting, with shaft hung from a top thrust bearing, in a dust-tight steel housing.

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## Material Handled Can't Get into the Bearings on R & M MOYNO PUMPS

One of the many reasons why Moyno pumps stand up so well on *abrasives* is the excellent protection of bearings. Bearings are mounted in an individual housing entirely *separate* from the pumping compartment. Pressure can't possibly force material into the bearings, nor can lubricant work its way into the material. The two enclosures are some distance apart, and each is *independently* sealed.

### THE LONG-LIVED PUMP

Moynos are built *throughout* for remarkable durability. They have no pistons, no valves; use no portion of the housing as sealing surface. The patented rotor-stator pumping element, with its *ever-changing* seal lines, delivers positive pressure without pulsation. Low internal turbulence, and the absence of flow restrictions, avoid destructive high velocities. No Moyno body casting has ever worn out. *Thousands* are in service.

### SOLVE YOUR PUMPING PROBLEMS

If you use pumps, or ever expect to, you should know about the Moyno. It pumps practically everything from free-flowing liquids to non-pourable pastes; passes particles; resists abrasives and chemicals; *stands up* where other pumps fail. Types and sizes for every use. Write today for new free Book No. 20, and the name of your Moyno distributor.



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MOYNO PUMP DIVISION • SPRINGFIELD, OHIO  
HOISTS & CRANES • MACHINE DRIVES • MOTORS • FANS • FOUNDED 1878

When inquiring specify CP A4361 — see handy form pages 2-3

## Ideas

### Water Glass is Good Insulator

*Applied in solution to wires and then heated*

Three chemists in the Chicago plant of the Western Electric Co., Chicago, have been granted a patent (Number 2,384,542) on a method of insulating electric wires with sodium silicate, long familiar as a preservative for eggs. The three chemists have found that if the silicate is applied in solution and the coated wire then heated, the silicate remains as a good and flexible insulation. Best results are obtained with a sodium silicate in which the ratio of silicon to soda is relatively high. (As reported in *Aminco Lab. News.*, American Instrument Co., Silver Spring, Md.)

★

### Houdrane-Paraffin Hydrocarbon

*None of the more than 50,000 possible isomeric hexadecanes have identical properties*

A new paraffin hydrocarbon, of the empirical formula  $C_{16}H_{34}$ , was discovered and named houdrane. It was analyzed by the hydrogen lamp method and was found to have  $15.11 \pm 0.03\%$  hydrogen and gave a H/C ratio equal to  $2.120 \pm 0.005$ , as against the theoretical figures of 15.137% and 2.125 respectively. Its structure is not definitely established, but it is a highly branched hexadecane having about as many carbon atoms in its branches as it has in the main chain. Of the over 50,000 isomeric hexadecanes only a very few are known. None of them have properties identical with houdrane. The best known hexadecane is the normal hydrocarbon or cetane. Houdrane shows appreciable differences in its properties from cetane. It is noteworthy that whereas cetane solidifies at  $\pm 18.1^\circ C.$ , houdrane remains liquid way below  $0^\circ C.$  and solidifies to a glass only at  $-78^\circ C.$  The boiling point at atmospheric pressure is approximately  $40^\circ C.$  lower than that of cetane. (Houdrane is named for E. J. Houdry, president of Houdry Process Corp., Philadelphia 2, Pa.)

★

### Molding Compound Curves in Plywood to Make Splints

*Technique developed during war to make waterproof splints for Navy use*

Among the newer applications of plastics that have won attention are strong lightweight plywood leg splints bonded with American Cyanamid's "Melurac" resin adhesive. These were produced during the war for the Navy. Although the use of this water resistant splint will be limited in peacetime, the technique of molding compound curves in plywood should find wide application. Thin sheets of birch veneer were passed through a glue spreader, collated into an assembly, and, by a special method of registering, were molded into an integral unit between heated fixed metal dies on an hydraulic press. The resin itself provides a water white flue line, which is durable, water resistant and free from stain and assumes structural safety of a neutral line. (From *Plastics Newsfront* — American Cyanamid Co., New York.)

## YALE CABLE KING

The Electric Hoist  
that operates . . . .

- under constant service
- with full load
- without overheating

You get these operating advantages because Cable King is the only air-cooled electric hoist. Air cooling eliminates excessive brake heat—makes it possible to get more lifts per hour.

You can do more in less time—get more production at less cost.

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When inquiring specify CP A4362 — see handy form pages 2-3

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**In Stainless Steel,  
Monel, Bronze, etc.  
Ultra-Fine filtra-  
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The unique and simplified design of the New "SEALED-DISC" Filter makes it particularly practical to construct it completely of Stainless, Monel, Bronze or Special Alloys to meet specific conditions and at surprisingly low cost. Add this to the remarkable features that have already made Alsop Filtration so successful wherever liquids are to be clarified.

We also make a special type filter for electroplating solutions. Descriptive literature covering the broad application of the "SEALED-DISC" Filters is yours for the asking.

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*Filters • Filter Discs • Sheets • Mixers • Agitators*  
105 Alsop Square, Milldale, Connecticut

When inquiring specify CP A4363 — see handy form pages 2-3



## Stapling Method Makes Positive Mechanical Joint

*Used in joining plastic laminates and other materials*

A recently developed rapid stapling method of securing a positive mechanical joint between Bakelite plastic laminates and other materials cuts assembly line time and achieves a greater economy of production. This handy method which simplifies an otherwise complex problem is facilitated by metal stitching machines manufactured by the Harris, Seybold, Potter Co.

Because of the extreme simplicity of the operation, this method of operation has been widely used in the aircraft industry and in the construction of prefabricated houses. No prepunching is necessary, for in a single operation the machine forms its own stitch from a single coil of steel wire, drives the staple and clinches it. By this method a loop type clinch or a flat type clinch may be obtained, depending on the model of the machine. The wire drawn capacity of the machine is sufficient to assemble  $\frac{3}{4}$  of an inch of various materials.

Bakelite laminated plastics are adaptable to this type of fabrication as they do not split or crack while undergoing the stitching process. They can be stapled to themselves or to any other material such as wood, leather, asbestos or metal. (Summarized from Bakelite Review — April)

★

## Spectrographic Analysis of DDT

*Infra-red technique analyze sample in 30 minutes*

Through the use of invisible light beyond the red end of the rainbow, a quick method for analyzing DDT has been developed which makes possible a better control of the quality of DDT insecticides. This method recently announced by du Pont chemists was recently described in a paper presented before the American Chemical Society. As used in the manufacture of insecticides, commercial DDT consists chiefly of three so-called isomers. In fact, it was pointed out, 45 different forms of DDT are theoretically possible. The most effective commercial products are composed largely of the isomer known technically as 1,1,1-trichloro-2,2-bis (p-chlorophenyl) ethane. The proportions of the various isomers in a particular lot of DDT influence the effectiveness of the product as an insecticide. Application of the infra-red spectrograph to the study of DDT was developed during the war at the du Pont Experimental Station under a contract with the office of Scientific Research and Development. Infra-red light is made to pass through a DDT solution, and the intensity of the various wave lengths of the light that emerge is automatically plotted. The arrangement of the atom in the molecules of the DDT sample is thus indicated in graphic patterns, as distinctive for each of the chemical compounds present as the fingerprints of the human hand.

By the spectrographic method it is possible to detect the presence of certain isomers and other materials not readily identified by analytical methods now in use. In addition, it is possible to analyze a sample of DDT by the infra-red technique in about 30 minutes, an operation that would require days by conventional procedures. Moreover, the spectrographic method is so sensitive that even the minute amount of DDT washed off a wall with a few strokes can be detected. (As reported in release of E. I. du Pont de Nemours & Co. [Inc.] )

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SUPERIOR DETERGENCY**

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When inquiring specify CP A4365 — see handy form pages 2-3



# New Materials

## Paraffin Modifier Improves Wax Wrapping Papers

*Improves wraps for foods; useful in connection  
with asphalt coated papers*

**Uses** — This modifier for solid paraffin, Tervan (commercial form of polybutene) now free from war limitations may be used in paper coating and similar paraffin wax applications. It improves bread wrap, frozen food packaging, paper milk containers and end seals for bread wrappers. While primarily developed as a paraffin wax modifier, Tervan has found sev-

eral other fields of usefulness. One of the more notable is in asphalt-coated and laminated papers. The addition of paraffin wax to asphalt so applied lowers its viscosity, permitting easier coating, and improves moisture permeability. Its use was always limited by poor compatibility; the paraffin wax tended to "bloom" out after coating. Tervan (349 or 449) added in required amounts with the paraffin wax corrects this and improves the moisture vapor resistance of the coated sheet.

**Features** — Tervan when blended with wax modifies the crystallinity of wax to the extent that it renders it more flexible. Polybutene — of which Tervan is the commercial form — is a hydrocarbon. It is tasteless, odorless, colorless and possess rubberlike characteristics.

**Description** — In its pure form, polybutene is so cohesive and adhesive that handling is not easy by the inexperienced. Also, its amorphous nature and lack of definite melting point make mixing difficult with the equipment available in paper converting plants. The development was therefore extended to include large scale blending of paraffin wax and polybutene to provide commercially concentrated grades capable of extensive dilution with additional paraffin wax by the converter in the equipment now used for paraffin wax. These are designated Tervan, the type of polybutene and paraffin wax melting point being distinguished by a terminal number. Food wrapping was consuming Tervan to a limited extent prior to World War II and its application to frozen food wrapping was



Filling paperboard containers with paraffin modifier; container easily stripped off before material is melted for use

indicated. Prewar use established three main grades — Tervan 3315, 349 and 449. These grades are shown being filled in the accompanying illustration. With the container stripped off, the contents is a 30 pound solid mass easily handled by one operator. Tervan 3315 differs from the other two grades in the type of polybutene it contains. This is the low molecular weight (viscous, soft and stick) grade. Films containing it are flexible and adhesion excellent. As the concentration of 3315 is increased, flexibility increases, brittleness disappears and the coating becomes more and more tacky and adhesive. Simultaneously there is an increase in the viscosity of the blend. This results in limiting penetration and aids "leg" strength. Tervan 3315 has unique power to laminate waxed paper to paperboard and the like. Thus, in jar top liners it holds heavily waxed sheets to chipboard. Also, it permits improvement in the bond of such laminations as cellophane to foil, foil to kraft and others. Several of its permitted war uses were of this type. One unique prewar use which can now be resumed is in preventing the scuffing and flaking of paraffin wax on bread wrap. Here the concentration required to produce the effect is low enough to avoid excessive pressure block during winding and storage.

Tervan 349 and 449 comprise tough, dry, elastic grade of polybutene (high molecular weight) in fully refined paraffin wax of different melting points. In Tervan 349, the melting point is 132° F. while in Tervan 449, it is 140° F.

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COMMERCIAL QUANTITIES**

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(Methyl Cyanide)  
CH3CN

A clear colorless liquid distilling without decomposition at 80-83° C.

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For further information write to:

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926 Niagara Building • Niagara Falls, N. Y.

When inquiring specify CP A4366 — see handy form pages 2-3



## Materials

Originally this selection was based on the varying requirements of films such as cellophane and glassine compared with ordinary waxing papers. The former usually required the harder, higher melting point paraffin wax, more like that applied as a single component coating. As the use was extended, this distinction was less marked and Tervan 449 is now applied wherever its superior hardness and higher melting points are of advantage. Tervan is packaged in five gallon "Balkan Box" containers (made by Sealright Co., Inc., Fulton, N. Y.). Tervan is pumped into the containers. A by-pass line around the pump and valves in the discharge and by-pass lines provide the necessary control in filling the containers. Additional information on request.

STANDARD OIL CO. OF NEW JERSEY, Dept. CP,  
17 Battery Place, New York 4, N. Y.

When inquiring specify CP A4367 — see handy form pages 2-3

### Six Improved "Silastic" Stocks For Molding, Extruding, Laminating

*Stronger and more elastic; endure temperatures of wider range than other rubberlike materials*

**Uses** — This family of elastic silicone materials is identified by the name — "Silastic." They can be molded, extruded, sheeted, friction calendered, laminated, or coated by adapting conventional processes and using conventional equipment. Electrical properties suggest their use as insulating material at normal industrial voltages and frequencies. "Silastic" materials can be applied as a coating for glass cloth, metal or wire. The materials have application where articles made from natural or the synthetic types of rubber may deteriorate because of heat or weathering.

**Features** — The "Silastic" stocks now available, when properly cured, have physical and mechanical properties which make them suitable for service where thermal stability and oxidation resistance, combined with high surface resistivity are important factors.

**Description** — These almost entirely inorganic silicone elastomers are built upon tough, flexible, heat stable skeleton structures of silicon and oxygen atoms. They cover a temperature span of —70° F. to over 500° F. The most conspicuous property of "Silastic" is its ability to endure temperatures above and below the useful limits of other rubberlike materials. Their resistance to permanent compression set at elevated temperatures is also of interest. Molded silastic plugs regain 87-94 percent of their original thickness after being compressed to 75 percent of their thickness for 6 hours at 302° F. These values were determined according to ASTM D-395-40T, Method B, except that tests were run at 302° F. instead of the specified 158° F. Hardness is practically constant at —65° F. The materials have been tested for resistance to reagents selected as representative of the various classes of solvents and chemicals. These materials are now available in commercial quantities in the following types: 150, 160, 167, and 180 covering a hardness range of 45-85 and designed for molding, sheeting, calendering or extruding. Numbers 120 and 125 are designed for coating and laminating. A series of pamphlets entitled "Silastic Facts" provides detailed information. "Silastic" Facts Numbers 1 and 1A are now available and will be sent on request.

DOW CORNING CORP., Dept. CP, Midland, Mich.

When inquiring specify CP A4368 — see handy form pages 2-3

## refer to this "product list" of Monsanto intermediates

helpful in connection with your  
long-range development plans

For your convenient reference, there follows a partial list of Monsanto intermediates, arranged in alphabetical sequence . . . Not all of these intermediates are presently available. Some are still in critical supply. Experimental samples and prices may be had.

You will find this list of particular value in connection with your long-range development plans. Contact the nearest Monsanto Office, or write: MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1700 South Second Street, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Cincinnati, Birmingham, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

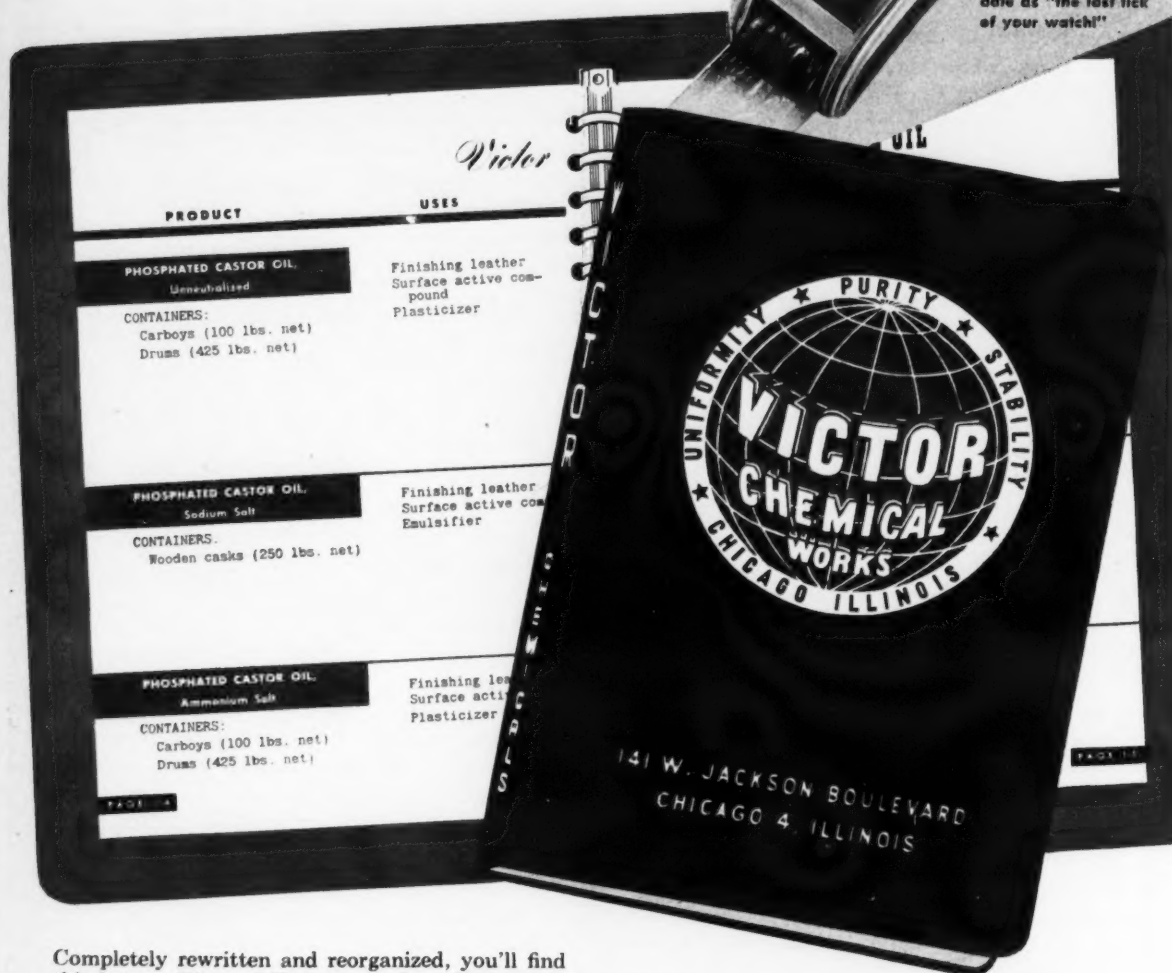
### PARTIAL LIST OF MONSANTO INTERMEDIATES

Benzenesulfonic Acid 70-71%	Orthonitrochlorobenzene
Benzoic Acid Technical	Orthophenetidin
Benzotrichloride	Ortho-Vanillin (2 Hydroxy 3 Methoxy Benzaldehyde, Technical)
Benzyl Chloride	Ortho-Veratraldehyde (2, 3 Dimethoxy Benzaldehyde, Technical)
Cyclohexylamine	Paranisidine
Dichloraniline	Parachloraniline
Dichlorophenol	Parachlorophenol
Dicyclohexylamine	Paranitrochlorobenzene
2:4 Dinitroaniline	Paranitrophenol
2:4 Dinitrochlorobenzene	Paraphenetidin
Metachloraniline	Paratoluenesulfonamid
Metanitrochlorobenzene	Paratoluenesulfonchloride
Nitrodichlorobenzene	Phenol USP
Ortho-Aminobicyclohexyl Refined	Phenolsulfonic Acid 65 and 70%
Ortho-Aminobiphenyl Technical	Phosphorus Oxychloride
Orthoanisidine	Phosphorus Trichloride
Orthochloraniline	Phthalyl Chloride
Orthochlorophenol	Salicylic Acid Technical
Orthonitraniline	Sodium Benzoate Technical
Orthonitrobiphenyl Technical	Thiourea
	Toluenesulfonic Acid 94%

**MONSANTO**  
**CHEMICALS**  
SERVING INDUSTRY...WHICH SERVES MANKIND

When inquiring specify CP A4369 . . . see information request blank, pgs. 2-3

## Announcing A NEW "PERPETUAL" CATALOG OF VICTOR CHEMICALS



Completely rewritten and reorganized, you'll find this latest edition of Victor's catalog of chemicals a handy guide to headquarters for phosphates, formates and oxalates. Note typical page above . . . how products are arranged into related groups for quick, easy cross-reference of properties.

Another desirable feature is that this new "perpetual" catalog will always be up-to-date "as the last tick of your watch." Replacement sheets, as old products are modified or improved, plus additional sheets covering new products, will be sent to you from time to time. They can readily be inserted into the binder. A personal request on your business stationery will bring a copy to you promptly . . . without obligation, of course.

### PARTIAL LIST OF VICTOR CHEMICALS

<b>Acids</b> . . . formic, metaphosphoric, oxalic, phosphoric, polyphosphoric.	<b>Phosphorus</b> . . . (yellow)
<b>Formates</b> . . . aluminum, sodium, sodium boro-	<b>Ferrophosphorus</b>
<b>Metaphosphates</b> . . . aluminum, ethyl.	<b>Phosphorus Compounds</b> . . . chlorides, pentoxide.
<b>Orthophosphates</b> . . . ammonium, calcium, iron, magnesium, potassium, sodium.	<b>Pyrophosphates</b> . . . calcium, sodium acid, sodium iron, tetrapotassium, tetrasodium.
<b>Oxalates</b> . . . calcium, sodium.	<b>Sulphates</b> . . . magnesium, sodium aluminum.
	<b>Wetting Agents</b>

**VICTOR CHEMICAL WORKS** HEADQUARTERS FOR PHOSPHATES • FORMATES • OXALATES  
141 West Jackson Boulevard, Chicago 4, Ill. <<<<

When inquiring specify CP A4370 . . . see information request blank, pgs. 2-3

## Materials

### Water Treatment Combats Scale In Air Conditioning Systems

*Slowly soluble phosphate glass made from food grade phosphoric acid fed to cooling water*

**Uses** — Because of the importance of uninterrupted efficient air conditioning in many processing plants, the question of maintenance is one that demands careful attention. Some air conditioning engineers point out that in numerous cases failure to give units proper service results in a slow decrease in efficiency, usually due to scale build-up. To combat this problem, "Micromet," a modification of "Calgon" (water treatment chemicals) is being used in a number of air conditioning installations. It is added to cooling water to prevent deposition of lime scale on tube surfaces. The make-up water for the condenser is passed through a bed of "Micromet," dissolving only about five parts per million parts of water to do the job. **Description** — The degree of hardness of the water must be taken into consideration in order to obtain the maximum benefits of "Micromet" treatment. As the water is recirculated in an evaporative condenser, the concentration of the scale forming salts is built-up due to the evaporation. This concentration must be controlled within certain limits. This is accomplished by means of overflowing to waste a calculated quantity of the recirculated water and making up this loss with fresh water. It can be readily seen that waters of low hardness content could be concentrated more times than waters of high hardness.

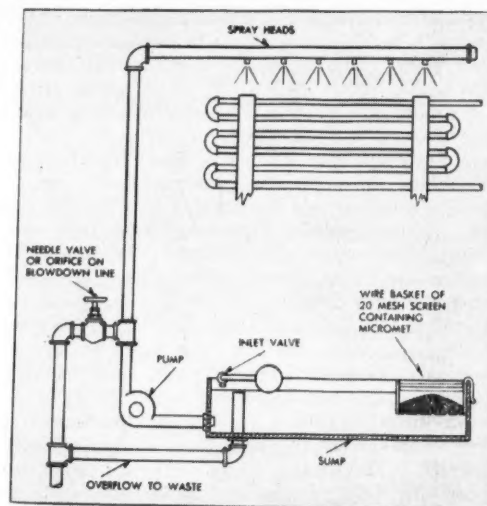


Diagram shows typical application of scale prevention treatment

It is to be noted that some air-conditioning equipment is manufactured with a constant overflow of approximately one and one half times the evaporation. This, therefore, would be sufficient concentration control for waters up to sixteen grains of hardness. Beyond this, scaling again becomes a problem, even with treatment unless additional waste water is provided for. The quantity of "Micromet" necessary to keep the tubes free from scale is determined by the amount of make-up water used. As the water passes through the charge of "Micromet" and into the system, it dissolves approximately one quarter of this initial charge in a month of continuous operation. At the end of this period the feeder should be recharged with an



## Materials

amount equal to that dissolved. It may appear that each installation should have the amount of chemical individually determined. However, one manufacturer, has found this need not be the case. For the sake of simplicity, an average charge has been found to work very well. To prevent scale, the recommended initial charge is one pound of "Micromet" for each 6000 gallons of make-up water used per month.

Where extreme conditions are encountered, requiring extra waste water additional amounts of the chemical will be needed. For control of corrosion an initial charge of one pound for each 3000 gallons of make-up water used each month or for each ton of refrigerating capacity is recommended. The dosage is higher in the case of corrosion control as it has been found that higher concentrations are necessary to form the protective film. "Micromet" should be placed in a wire basket in the sump of the cooler or condenser. The dispenser should be made of 20-30 mesh screen and of such size that the bed of the "Micromet" is not over two inches deep. The top of the basket remains open and the bed of "Micromet" is placed just under the surface of the water. One pound of "Micromet" occupies 22 cu. ins. It is necessary that the surface coils be completely wetted by the sprays. On portions of the surface where evaporation or dryness occurs, deposits will continue to form despite any treatment.

CALGON INC., Dept. CP, 323-4th Ave., Pittsburgh, Pa.

When inquiring specify CP A4371 — see handy form pages 2-3

## Replacement for Rosin Maleates

*Offers economies, better cold check resistance*

**Uses** — To be used in place of rosin maleates. This rosin base resin is suitable as the resinous component of nitrocellulose lacquers for a wide range of industrial lacquer uses as well as for furniture lacquer finishing systems and in lacquer-primer surfaces.

**Features** — In view of demands for glycerine it is of particular interest and it offers considerable economies in use.

**Description** — This new lacquer resin is identified as Celolyn 102. Nitrocellulose lacquer films containing it possess improved cold check resistant qualities and there is no sacrifice in print resistance or hardness of film.

HERCULES POWDER CO., Dept. CP, Wilmington, Del.

When inquiring specify CP A4372 — see handy form pages 2-3

## Flux for Brazing of Aluminum

*Equally useful in furnace or torch brazing*

**Uses** — This flux, known as "Flo-Well" No. 2, is for brazing aluminum. It is equally useful in either furnace brazing or torch brazing aluminum.

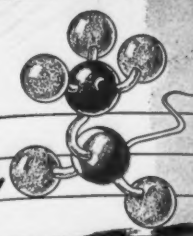
**Features** — It is easy to apply and does not solidify or deteriorate.

**Description** — "Flo-Well" and X176 wire may be employed alone in brazing 61S and, in combination with hydrogen and oxygen, may be used in brazing 2S, 3S, 24S and 52S. The flux is packaged in 1/2 and 1 lb. jars and is also available in larger quantities.

A. K. MAUK, Dept. CP, 7501 Hamilton Ave., Pittsburgh 8, Pa.

When inquiring specify CP A4373 — see handy form pages 2-3


MAY - JUNE, 1946




**\*CH<sub>3</sub>NH<sub>2</sub>**

# Monomethylamine


*Now used in manufacturing dyes.*




*Textile chemicals*



*pharmaceuticals*



*explosives*



*photographic chemicals*

*Reacts with Halogens to form salts*

*Reacts with fatty acids to form soaps*

*Readily soluble*

*Forms strong basic solutions*

*Available in 30-31% aqueous solution*

*Easily recovered by heating*

*Raw material for synthesis*

**CSC**

**Properties of MONOMETHYLAMINE**

Molecular Weight: 31.06

Boiling Point: -6.0 C to -5.5 C at 760 mm Hg

Specific gravity: 0.699 at -10.8 C/15 C

Solubility: Very soluble in water and in alcohol. Also in ether. At 25 C water will dissolve 959 times its volume of Monomethylamine.

Flash point (30% solution): Approx. 0.3 C (32.5 F)

Weight per U. S. Gallon (30% solution): Approx. 7.7 lb. at 68 F

**\*Note: Compare with data on Dimethylamine and Trimethylamine**

Samples and technical data will be sent on request.

**COMMERCIAL SOLVENTS**

*Corporation*

17 East 42nd Street, New York 17, N. Y.

When inquiring specify CP A4374 . . . see information request blank, pgs. 2-3



**CONDENSER TUBES OF ALCOA ALUMINUM**  
**LOW IN FIRST COST—HIGHLY CORROSION-RESISTANT**

**A**LCOA now offers you Alclad Aluminum tubing for condenser tubes.

With aluminum's naturally excellent heat conductivity, you are assured of high operating efficiency.

In many processes, Aluminum condenser tubes are preferable because aluminum does not discolor the product, alter its taste or otherwise cause contamination.

Now in Alcoa Alclad Aluminum you have two aluminum alloys combined in a single

tube, providing cathodic protection which lengthens its life.

Condenser tubes of Alcoa Aluminum usually cost no more, often less, than other tubes. Why not try them in one installation to prove their added worth? Call on our sales office or write ALUMINUM COMPANY OF AMERICA, 1731 Gulf Bldg., Pittsburgh 19, Pa.

**ALCOA ALUMINUM**



When inquiring specify CP A4375 . . . see information request blank, pgs. 2-3

*Materials*

**Adhesives Use Synthetic Resin**

*Cold padding glue and label paste resist crystallization and temperatures*

*Uses* — As a cold padding glue.

*Features* — The raw material base used is a plastic synthetic resin, selected because of its resistance to extremes of temperature and climatic conditions. The use of plasticizing agents aids in overcoming crystallization, hardening and brittleness and imparts greater covering qualities.

*Description* — This pliable cold padding glue is available in red and white (natural) colors. It can be applied by hand brushing or spray gun. Packed in quart and gallon jars, five and ten gallon steel pails, thirty and fifty gallon drums.

*Uses* — For affixing labels to tin, treneplate, painted, lacquered and varnished surfaces, glass, wood, etc.

*Description* — Grip Tight is a synthetic resin emulsion adhesive. A soft, buttery paste, capable of tanking excellent dilution; non-injurious to skin, clothing or brushes. Upon drying produces a permanent, non-crystallizing, bond between label and surface that withstands immersion, humidity and temperature changes.

PAISLEY PRODUCTS INC., Dept. CP, 1770 Canalport Ave., Chicago, Ill.

When inquiring specify CP A4376 — see handy form pages 2-3

★

**Veneer Coatings are Included in Indicated Uses for New Resin**

*Used chiefly with glass fabric laminates but may be applied to paper and various cloths*

*Uses* — Plastics fabricators are testing the material to determine its suitability in the manufacture of such diverse products as transparent coatings for wood veneers, tooling jigs, structural panels for automobiles, airplanes, refrigerators and washing machines, entire sections of sinks and decorative panels.

*Features* — This new resin has good bonding properties and high resistance to heat. In its cured state, BCM, has no odor and is resistant to most organic materials. Experiments showed a wide range of colors could be obtained by adding oil soluble dyes or pigments to the resin.

*Description* — This new resin — known only as BCM —



Glass fabrics impregnated with new resin form an exceptionally rigid panel

CHEMICAL PREVIEW



## Materials

is used chiefly with glass laminates at present, although it may also be applied to paper, hemp, wood and various cloths. It requires only a short curing period and low laminating pressure, and can be used as an impregnating and laminating resin either by itself or mixed with a polymer. Absorption of water and other common solvents, such as acetone and ethanol, is very low, from 1 to 2 percent. This new resin is thermosetting. When cast as a transparent sheet on table tops, it has a permanent high gloss finish. In addition, thin veneers to which BCM has been applied can be bent without crazing or peeling the resin. The illustration shows layers of glass fabric laminated with new resin to form a panel so stiff that the laboratory technician is unable to bend it. The liquid resin has not been applied to the fabric layers in the right hand section of the panel. This new material, now produced in experimental quantities, is expected to enjoy wide use very soon in the previously cited applications and many others. BCM may be worked with high speed tools easily by the same methods as used for methacrylates.

E. I. du PONT de NEMOURS & CO., Dept. CP, Wilmington, Del.

When inquiring specify CP A4377 — see handy form pages 2-3

### Data on Thanite, DDT and Combinations of These Insecticides Concentrates

A comprehensive textbook on Thanite, DDT, and derivatives and combinations of both these insecticide concentrates gives new information on the use of these concentrates in household sprays, livestock sprays, flea powders and dips in pest control and pediculosis control. In addition, the book lists data comparing Thanite to other insect concentrates, including a glossary of technical terms peculiar to the insecticide industry. The book is of interest to the insecticide manufacturer who seeks current practical information on insect sprays. The seven concentrates discussed in this book are Thanite, Thanite plus DDT concentrate, Thanisol 70, Thanisol 70 plus DDT concentrate, Water Miscible DDT concentrate and Oil — Soluble DDT concentrate. The test data is the result of thousands of investigations into the effectiveness of this manufacturer's toxicants against flies, roaches, mosquitoes, fabric pests, termites, and other insects. Test data on the toxicity of Thanite is included.

HERCULES POWDER CO., Dept. CP, Wilmington, Del.

When inquiring specify CP A4378 — see handy form pages 2-3

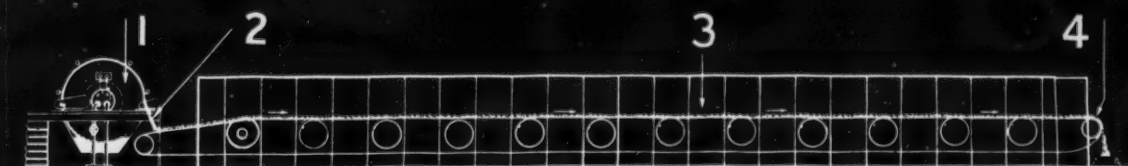
### Protective Coatings for Corrosion-Proofing Service — Used on Concrete, Metal Surfaces

A twelve-page bulletin gives detailed information on a selection of protective coatings. Applications include use on such difficult jobs as corrosion-proofing concrete, bricks, masonry, cast stone, etc. A series of unretouched photos include views showing use of these materials in a muriatic acid plant. Some of the many applications referred to are: all steel and concrete surfaces in fertilizer plants; in hydrochloric acid manufacturing plants; in plating and pickling rooms; in synthetic rubber plants. Other uses include lining storage tanks for sulfuric acid, alum solutions, salt brine, caustic soda.

PRUFLOAT LABORATORIES, INC., Dept. CP, 50 East 42nd St., New York 17, N. Y.

When inquiring specify CP A4379 — see handy form pages 2-3

# PROCTOR CONTINUOUS CONVEYOR SYSTEM SPEEDS OUTPUT... IMPROVES QUALITY OF STARCH

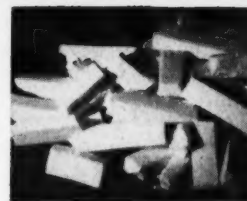


1. Starch is mechanically dewatered by means of a rotary vacuum filter.
2. Having been scored on the filter, starch is delivered to conveyor of dryer in the form of  $\frac{1}{2}$  inch cubes, with a moisture content of 78.5% (B.D.W.B.).
3. Due to the pre-forming of the starch on the filter and breaking the filter cake into  $\frac{1}{2}$  inch cubes, it is possible to dry starch rapidly—thus preventing Bone Dry Weight Basis.
4. Starch leaves dryer with a moisture content of 13.6% (B.D.W.B.). Capacity of dryer shown is about 4800 pounds (C.D.W.T.) per hour.

case hardening and assuring thorough drying. Having been broken up into small pieces, it is possible for air to circulate through the bed of material on the conveyor. Temperatures average 180 F. at beginning of the cycle and 215 F. at the end.

†Commercial Dry Weight.

The physical characteristics of starch make it a difficult product to dry in large scale production. Dried too fast—or with temperatures that are too high—case hardening results and the dispersibility of the starch in liquid is ruined. Yet, with all of these factors to overcome, Proctor engineers have developed this continuous system that cuts drying time for starch down to a matter of minutes from 12 hours. Not only that, the system assures a starch that is free from surface baking or case hardening. Naturally, this greatly increases the output capacity over that which was possible with old-fashioned kiln drying. Dried starch is cleaner, contains far less impurities



Close-up shows  $\frac{1}{2}$  inch cubes of starch... the form in which it enters the dryer, after having been scored on the filter. Circulation of heated air through the bed of these cubes promotes rapid, uniform drying.

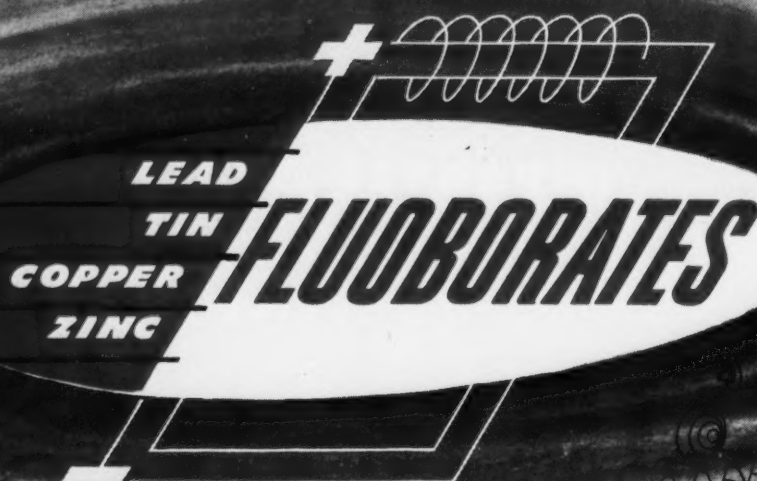
and has a better color than starch dried by less recent methods. Accurate control of final moisture content is assured, and this is an important factor. This Proctor continuous drying system for starch represents one more major contribution of Proctor engineers to more efficient production in the process industries. The entire system is the outgrowth of a problem that came to Proctor research laboratories a few years ago. If you have a drying problem, you'll be on the right track by consulting Proctor engineers now!

P&S

PROCTOR & SCHWARTZ · INC · Philadelphia 20 · Pa.

When inquiring specify CP A4380 — see information request blank, pgs. 2-3

# Products of General Chemical Fluorine Research



## Pointing to Progress in Modern Electroplating

Progress and important advancements in modern electroplating lie ahead with the broadening use of General Chemical Metal Fluoborate Solutions. Today—fluoborate baths are proving outstanding for many lead, tin, lead-tin alloy, copper, zinc and other applications. Tomorrow—Metal Fluoborates hold still greater promise since their superiority to ordinary baths is indicated both by the unusual characteristics of the fluoborate electrolyte and by the type of deposits obtained.

To the electroplater, the Metal Fluoborates, generally, offer such advantages as: 1. Concentrated solution form; no mixing or dissolv-

ing necessary. 2. Simplicity of bath preparation and ease of control. 3. Stability of composition, high conductivity, and good covering power. 4. Fine-grained deposits of good color. 5. High-speed operation, with practically 100% anode and cathode efficiency.

These advantages can mean real economy, efficiency, and convenience in your plant. So investigate the Metal Fluoborates now by writing for technical data and trial samples of the products that interest you. As always, General Chemical's skilled Engineering and Technical Servicemen are available to assist you in preparing for test or full-scale runs.

### GENERAL CHEMICAL COMPANY

40 RECTOR STREET, NEW YORK 6, N. Y.

Sales and Technical Service Offices: Atlanta • Baltimore • Boston • Bridgeport (Conn.) • Buffalo • Charlotte (N. C.) • Chicago • Cleveland • Denver • Detroit • Houston • Kansas City • Los Angeles • Minneapolis • New York • Philadelphia • Pittsburgh • Providence (R. I.) • San Francisco • Seattle • St. Louis • Utica (N. Y.) • Waukegan • Yakima (Wash.)

In Wisconsin: General Chemical Wisconsin Corporation, Milwaukee, Wis.

In Canada: The Nichols Chemical Company, Limited • Montreal • Toronto • Vancouver



### Special Technical Manuals

Available now . . . extensive operating data on the Metal Fluoborates in the technical manuals outlined here. For copies, write or phone the nearest General Chemical Sales and Technical Service Office listed above.

#### Lead-Tin Alloy Plating MANUAL LT-1

Full description of the practical, economical fluoborate method for plating lead-tin alloys in any desired ratio (particularly low-tin ranges) with high degree of uniformity and minimum of control measures.

#### Zinc Fluoborate MANUAL ZF-1

Covers high-speed plating with Zinc Fluoborate electrolyte from which zinc is deposited at higher rate than from other acid baths. Also explains tank and barrel plating on cast or malleable iron.

#### Copper Fluoborate MANUAL CF-1

Ready soon. Comprehensive details on Copper Fluoborate electrolyte which deposits copper at higher rate than any other known acid baths . . . without addition agents . . . with unusual simplicity of control.

#### Metal Fluoborates BULLETIN 1015-A

General information on Metal Fluoborates plus specific operating data on plating with Lead, Tin, and Cadmium Fluoborate.

When inquiring specify CP A4381 . . . see information request blank, pgs. 2-3

## Materials

### Low Cost Isopropylamine

98-100% grade; also aqueous solution containing 50-54% of amine by weight

**Uses** — Suggested as the starting material for the synthesis of a variety of products including dyestuffs, rubber chemicals, insecticides, corrosion inhibitors, pharmaceuticals, photographic chemicals and textile specialties. Its soaps offer promise as emulsifying and surface active agents.

**Features** — Low priced "Monoisopropylamine" primary aliphatic amine 98-100% grade; also available in the form of an aqueous solution containing 50-54% of the amine by weight.

**Description** — Isopropylamine 98-100% is a colorless liquid boiling at 31.9° C. It is completely miscible with water, alcohol, ether and many other organic solvents. It undergoes the usual reactions of a primary aliphatic amine. Both grades mentioned are available in drum quantities. Expanded production is anticipated.

COMMERCIAL SOLVENTS CORP., Dept. CP, 17 E 42nd St., New York, N. Y.

When inquiring specify CP A4382 — see handy form pages 2-3

★

### Oil Refinery Towers Restored by Chemical Cleaning Methods

*Thorough job performed quickly at low cost; no delay in putting towers back into service*

**Uses** — Among the various cleaning problems in which these materials find application is the cleaning of oil refinery towers.

**Features** — Efficiency restored by relatively simple procedure and at costs in time and labor that make practical the cleaning of towers that under ordinary methods could not easily be restored at reasonable expense.

**Description** — One older method of cleaning involves taking the tower completely apart. Another — if hand openings are available — involves cleaning the trays from the outside. The costs of such cleaning methods are high, cannot generally be counted on to do the most thorough job and towers are often kept out of service for a number of days. Modern chemical means of cleaning bubble or absorber towers are used to good advantage. The method consists of circulating a hot solution of a heavy duty cleaning material through the tower until the sediment, sludge and gummy carbon are removed. The equipment required consists of a heated tank, and piping, pumps, valves, etc. of the type which are generally on hand at most refineries. A circulating system is set up so that the cleaning solution is pumped from the tank to the top of the tower and out at the bottom to the solution tank for reheating and recirculating. The tank is equipped with steam coils of sufficient size to keep the solution at 200-210° F. during the circulating period.

A typical operation can be sighted in the case of a Texas refinery. Two towers were to be cleaned. They had been in use for six years without cleaning and were operating at about 60% efficiency. A tank equipped with steam coils was set up and pump and piping arranged to establish a circulating system. Two heat exchangers located between the towers were included in the system so that they could also be cleaned. A pair of oil drums was placed in the return line to allow sediment and sludge to settle out and the solution tank was equipped with a baffle plate for the same purpose.

A heavy duty material capable of emulsifying and loos-

CHEMICAL PREVIEW



ing the sludge and carbonized oil deposits was selected for the job. The towers were first drained and thoroughly flushed out with hot water to remove as much oil and residue as possible. Circulation of the cleaning solution was then begun. At intervals solution flow was reversed to aid in loosening deposits. When inspection revealed the necessary cleaning had been completed, the cleaning solution was dumped and the towers were thoroughly rinsed out with hot water. (The reversal of the solution flow mentioned is usually feasible only in the smaller size towers and is not employed in the larger ones as they are not generally strong enough to hold the weight of the solution.)

The next operation was to remove carbonates and rust. A compound (Oakite No. 32) was used in the same tank and equipment. This compound is an acidic material used to remove hard water scale and rust. A solution was circulated until titration indicated scale and rust had been satisfactorily removed. The towers were then rinsed with an alkaline material. Complete information regarding materials and procedures for tower and other industrial cleaning operations on request.

OAKITE PRODUCTS, INC., Dept. CP, 27 Thames St., New York 6, N. Y.

When inquiring specify CP A4383 — see handy form pages 2-3

★

## Corrosion Resistant Coating Protects Surfaces; Equipment

*Product is a blend of exact proportions of resins, solvents, plasticizers, stabilizers, pigments*

**Uses** — This product developed during the war is now available for general industrial use. "Nukemite" is a plastic film very resistant against corrosion and contamination providing coatings for a wide range of surfaces: concrete, structural steel, wood, floors, tanks, hoods, ducts, pipes, machinery, box cars, tank cars, drums and equipment. It is in use in such industries as acid manufacturing, breweries, chemical plants, fertilizer plants, metal and metal working plants, refineries and paper mills.

**Features** — Easily applied in the plant by any competent workmen. The coating is resistant to acid solutions such as sulphuric, hydrochloric, hydrofluoric, nitric, etc. Temperatures ranging from — 50° F. to 170° F. constantly applied and intermittently raised to 230° F. are withstood.

**Description** — "Nukemite" is a solution of synthetic resins which, upon drying, forms a continuous and impenetrable plastic film. Application is by brushing, spraying or dipping. For best results surfaces should be sand-blasted, but when this is not practical, the surface must be dry, neutral and free from rust, dirt, and grease. "Nukemite" Primer is first applied, one coat usually being sufficient. This is followed by two or more coats of "Nukemite", severe conditions requiring more. A thinner, compounded of aromatic hydrocarbons, is used if consistency is too heavy for efficient brushing or if spray application is desired. Colors available: black, white, gray and red. Coverage ranges from 150 to 200 square feet per gallon. A recent bulletin gives detailed information and features a series of application photos and brief case histories.

NUKEM PRODUCTS CORP., Dept. CP, Buffalo 20, N. Y.

When inquiring specify CP A4384 — see handy form pages 2-3

# OXALATES

Ammonium Oxalate

Potassium Oxalate

Iron Oxalate

Iron and Ammonium Oxalate

Iron and Sodium Oxalate

CHAS. PFIZER & CO., INC., 81 Malden Lane, New York 7, N.Y.  
444 West Grand Avenue, Chicago 10, Ill.  
605 Third St., San Francisco 7, Cal.

# PFIZER

Manufacturing Chemists Since 1849

## TEAM-MATES IN QUALITY

### PURECO CARBONIC GAS

Noted for its dependability, quality and uniformity. Please order only as necessary, returning all empty cylinders promptly.

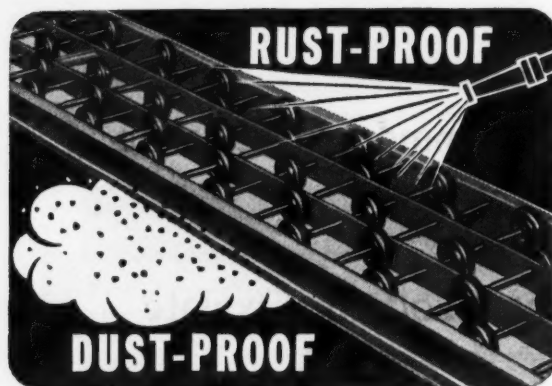
"DRY-ICE", the versatile, economical refrigerant used in a host of ways in the processing of Chemicals and Pharmaceuticals.

### PURE CARBONIC, INCORPORATED

General Offices: 60 E. 42nd St., New York 17, N.Y.

NATION-WIDE SERVICE — DISTRIBUTING STATIONS IN PRINCIPAL CITIES

When inquiring specify CP A4385 — see handy form pages 2-3



## Buschman

"RED WHEEL"

### Portable Conveyors

Tried....  
Tested..  
Proven!

Now Buschman "Red Wheel" Portable Conveyors give you new advantages never before available — full protection against moisture, dust, grit or fumes! This means more durable, smoother running conveyors. These new, exclusive feature "Red Wheel" conveyors are INTERCHANGEABLE with our standard line of conveyors and accessories. For information on this and standard conveyors, write for Bulletin 10. Representatives in principal cities.

THE E. W. BUSCHMAN CO., Inc.  
Spring Grove and Clifton  
Cincinnati 32, Ohio

When inquiring specify CP A4386 — see handy form pages 2-3

## Materials

### Fiberglas Mat Reinforcement for Plastic Laminates

Mats may be formed by applying heat alone or by impregnating with resin being used

**Uses** — This new material designed for plastics reinforcement, known as Fiberglas Mat, Series X — 30,000 was just recently announced.

**Features** — The mat is composed of continuous glass filaments bonded with a vinyl resin. As the glass filaments are drawn and wound on forming tubes, they are lubricated with a compound that has a chemical affinity for the glass fibers as well as for the commonly used polyester-type resins. The fibers are then cut off forming the tubes and separated into loose packs. Subsequently the packs are formed into mats bonded with vinyl resin. A vinyl resin is used to hold the glass fibers in any form because the resin may be softened either by heat or by solvents in the usual contact-pressure resins. This property makes it possible for the fabricator of formed parts in which the mat is the reinforcing material, to form mats by applying heat alone or by impregnating the mat with the resin that is being used. Hence, the laminator may choose either method to stretch the mat and form it to the contours of the mold.

**Description** — In making a dry lay-up, the mat is heated with infra-red lamps and successive layers of the mat are laid up on lubricated mold. The mat is stretched, if necessary, to conform to contours. The proper percentage of contact-pressure resin is poured on the mat and allowed to saturate it. A spatula is used to distribute this resin to unsaturated areas. A parting agent film is placed over the lay-up. A rubber bag is laid over the assembly and a vacuum is drawn. The lay-up is then ready for curing. A contact-pressure resin that can be sprayed is used in making a wet lay-up. The Fiberglas mat is fed onto a conveyor belt and sprayed with resin. No squeeze rolls are necessary to remove excess resin as the resin content can be regulated by the spray. The mat is laid up and cured as in the dry lay-up process. Variations of both the dry and wet lay-up process have been successfully employed.

The Fiberglas mat is five-hundredths (0.05) of an inch thick and weighs 1.5 ounces per square foot. Test samples of the Fiberglas-mat-reinforced laminates show the following strengths: tension, 20,000 pounds per square inch; compression, 25,000 pounds per square inch; flexure 35,000 pounds per square inch; modulus in flexure,  $1.3 \times 10^6$ ; impact (izod) 15 foot pounds per square inch of notch. Wet strength of the test samples was 90% of original flexure strength after 24 hours of submersion in water. Specific gravity of the test samples was 1.55. The specimens were approximately one-fourth inch thick. They were cured at 150 to 200 degrees F. for 20 minutes, and were subsequently cured at 250 degrees F. for 40 minutes.

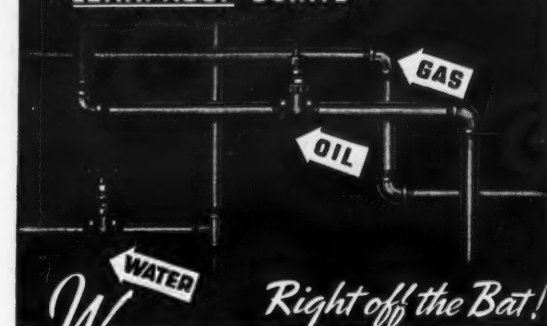
OWENS-CORNING FIBERGLAS CORP., Dept. CP,  
Toledo, Ohio.

When inquiring specify CP A4387 — see handy form pages 2-3

### Geon Polyvinyl Materials

Featured by tables outlining suggested applications and giving full details of properties, a new 16 page booklet on Geon polyvinyl materials has recently been published. It describes four Geon resins, two polymers and two

## LEAKPROOF JOINTS



### Insoluble PLASTIC LEAD SEAL

- Insoluble in water, gasoline, propane, CO<sub>2</sub>, etc. Won't wash out.
- Seals quickly; fills clearances and imperfections.
- Stops galling, rust. Never hardens; joints easily taken apart later.
- Ready for use, in 1, 5, 7-lb. cans.

Order a trial can of Plastic Lead Seal—watch it reduce maintenance in your plant or product.



### CRANE PACKING COMPANY

1821 CUYLER AVE • CHICAGO 13, ILL.

When inquiring specify CP A4388 — see handy form pages 2-3

## IF YOU NEED A LABOUR NOTHING ELSE WILL DO

The various types of LaBour Centrifugal Pumps provide operating characteristics highly important in the process industries — characteristics not obtainable from other comparable equipment.

Let us explain how the right selection from the LaBour line can solve many problems, reduce hazards, and cut costs.

THE LABOUR COMPANY, INC.  
Elkhart, Indiana, U. S. A.



When inquiring specify CP A4389 — see handy form pages 2-3

CHEMICAL PREVIEW



## Materials

copolymers of vinyl chloride; discusses the many variations possible and lists properties. Methods for processing are outlined. Discussion of Geon plastics, together with tables on electrical and chemical properties, methods of compounding and effects of various compounding practices is one of the outstanding sections of the booklet. Another is devoted to latices, stable colloidal dispersion of a special type of vinyl chloride resin in water, and a plastic latex, among the newest developments in this field. Suggested applications for dipped, spread or machine coated methods are listed.

B. F. GOODRICH CHEMICAL CO., Dept. CP, Rose Bldg., Cleveland, Ohio.

When inquiring specify CP A4390 — see handy form pages 2-3

### Corrosion-Proof Material for Fume Washers, Acid Absorbers

*Resists alkalis, solvents; thermal shock and temperatures to 360 degrees F.*

**Uses** — This corrosion-proof material known as "Permanite," is being used for many types of construction including fume washers, acid absorbers and other functional units designed for specific jobs by this organization. It is suitable for tanks, trays, plates, covers, flanges, linings and as a laminate in many shapes.

**Features** — "Permanite" and chemical glass fabric laminates feature great strength.

**Description** — Chemically "Permanite" resists alkalis, weak or strong; resists chlorine, hydrochloric acid, hydrofluoric acid, phosphoric acid, acetic acid and up to 50% sulphuric acid. It resists solvents such as gasoline, alcohols, ketones, phenol and glycerine. Physically it is tough, hard and non-absorbent. It resists thermal shock and temperatures up to 360 degrees F. It may be bonded strongly to many other materials. Detailed information as to fabrication of slabs into finished products on request.

MAURICE A. KNIGHT CO., Dept. CP, Akron, Ohio.

When inquiring specify CP A4391 — see handy form pages 2-3

### Silica Binder & Gelling Agent

*Condensation product deposits silica at much lower costs; useful in heat resistant coatings*

**Uses** — This new condensation product containing approximately 40 percent available silica is of interest as a refractory particle binder, for weatherproofing stone work and for formulating special heat-resistant surface coatings. It is also useful for gelling such liquids as acetone, ethanol and isopropanol to make "solid fuels."

**Description** — This product known as Ethyl Silicate 40 is available in tank car lots. It is a light-brown, mild odored liquid which undergoes the hydrolysis and subsequent dehydration characteristic of pure tetraethyl orthosilicate. It deposits silica at lower costs than other ethyl silicates. Information on the chemical properties of ethyl silicate 40 and a detailed discussion of methods of hydrolysis can be obtained from the producer. Ask for information sheet on "Ethyl Silicate 40," Form 6221.

CARBIDE & CARBON CHEMICALS CORP., Dept. CP, 30 E. 42nd St., New York 17, N. Y.

When inquiring specify CP A4392 — see handy form pages 2-3

MAY - JUNE, 1946



## If it has to do with DDT, work it out with DU PONT!

**MANUFACTURERS** working with formulas that employ DDT are invited to come to Du Pont for technical service! Experience gained by this major supplier of DDT to the armed forces may be of considerable value to you.

That experience plus Du Pont's continuing laboratory and field studies make it possible to supply you with Du Pont DDT Technical that measures up to rigid requirements.

Because of the method by which it is manufactured, Du Pont DDT Technical Grade is

uniformly dependable. It works well in dry preparations, and dissolves quickly forming clear solutions.

To help you formulate DDT preparations that have a sound basis for commercial use, our complete facilities are available. We shall be glad to supply working samples, literature or to have a representative call.

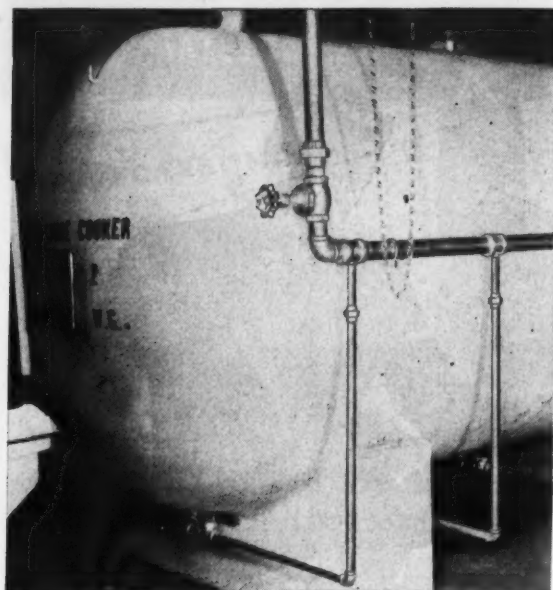
E. I. du Pont de Nemours & Co. (Inc.), Grasselli Chemicals Department, Wilmington 98, Delaware.



BETTER THINGS FOR BETTER LIVING  
... THROUGH CHEMISTRY

## DU PONT DDT Technical

When inquiring specify CP A4393 . . . see information request blank, pgs. 2-3



## The high Rust Inhibition of EAGLE SUPER "66" pays you an extra dividend!



Yes, in addition to doing a tremendously efficient job of insulating, Eagle Super "66" Insulating Cement actually inhibits rust! This prolongs the life of metal equipment, cuts down costly repairs.

### Other significant Super "66" features

"Springy Ball" structure. Super "66" is made up principally of "Springy Ball" Mineral Wool pellets, literally honey-combed with heat-saving dead air cells.

**Super "66" withstands** a full range of temperatures up to 1800° F., and if not used at temperatures above 1200° F., can be removed, remixed and reused!

**All-purpose—easy to apply.** Suitable for most any size or shape surface. Just mix with water, spot over surface and trowel to desired thickness.

**High coverage.** As high as 65 sq. ft. per 100 lbs. wet. Shrinkage, which occurs in thickness only, is less than 15%.

Send for data sheets. They contain complete technical information about Eagle Super "66." Available on request.

Buy MORE U. S. Savings Bonds!

### EAGLE-PICHER INSULATIONS High and Low Temperature

Made by THE EAGLE-PICHER COMPANY, Cincinnati (1), Ohio  
Eagle Super "66" Insulating Cement • Eagle L-T and M-2 Felt • Eagle Supertemp Block • Eagle Blankets • Eagle Pipe Covering • Eagle Insulsoal • Eagle Loose Wool Eagle Insultic • Eagle Switchek • Eagle Drycote



When inquiring specify CP A4394—see handy form pages 2-3

## Materials

### Modified Polystyrene Injection Molding Powder

*For use at temperatures above heat distortion point of unmodified styrene compounds*

**Uses**—This thermoplastic injection molding powder, which is a modified polystyrene, is intended for use at temperatures above the heat distortion point of unmodified styrene compounds or of Plexiglas.

**Features**—Combines higher heat resistance, greater strength, machining qualities and weathering characteristics with many of the desirable properties already demonstrated by styrene polymers. Moldings do not show the tendency to crazing characteristics of many unmodified styrene compounds. These moldings show very low shrinkage even for "heat resistant" thermoplastics. The powder is odorless and tasteless.

**Description**—"Plexene M" molding powder is a styrene co-polymer which has been modified and is easily molded in commercial injection presses. As its ASTM flow temperature (D-569-45) of  $145 \pm 5^\circ \text{C}$ . ( $293 \pm 9^\circ \text{F}$ .) indicates, the material requires slightly higher cylinder temperatures than conventional styrene formulations. Best results are obtained in the 430-480° F. range, using medium to high molding pressures. Plexene M has a heat distortion temperature (ASTM D648-45T) of 89° C. (192° F.) which is considerably higher than that of Plexiglas R (75° C. — 167° F.) and standard polystyrene compounds. Residual strains are lessened by its good flow characteristics; maximum service temperatures of 90° C. (194° F.) should be satisfactory for Plexene M molding powder except where extreme dimensional stability is necessary. The new formulation represents a marked improvement in strength characteristics not only over standard styrene powders but also over Plexiglas. Strength is good in proportion to its low specific gravity (1.08). Plexene M is practically unaffected by acids, alkali and dilute alcohol. It is also resistant to gasoline and commercial inks but is attacked by organic solvents such as acetone and ethylene dichloride. It has somewhat lower dielectric qualities than Plexiglas. It has a power factor lower than Plexiglas but not as low as unmodified polystyrene. Its arc resistance is superior to styrene but does not show tracking after  $140 \pm 10$  seconds (ASTM D495-42) as compared with Plexiglas which does not track. The natural color of Plexene is light Amber, and transparent and opaque colors ranging from ivory to black are available. Plexene is available in limited quantities but availability of increased quantities is indicated for the latter half of this year.

ROHM & HAAS CO., Dept. CP, Washington Square, Philadelphia 5, Pa.

When inquiring specify CP A4395—see handy form pages 2-3

### Stainless Steel Filter Medium

*In form of thin sheets can be bent about small radius*

**Uses**—Nearly every type of conventional apparatus can use this stainless steel filter medium. Its combination of corrosion, resistance, strength, and ability to be formed and welded makes possible the design of new filter equipment for both laboratory and industrial use. Applications include: filters, aeration units, breathers, flame arrestors, pressure snubbers, selective separations of fluids and many others.



### KINNEY High Vacuum Pumps

The team of Kinney Pumps, shown above, work day after day, dehydrating and degassing vacuum pump oil for the General Electric Co. Installed by Buckeye Laboratories of Cleveland, these units are typical of thousands of Kinney Pumps creating and maintaining the low absolute pressures required in making electronic products, in sintering alloy metals, coating lenses, producing penicillin and aiding countless other modern processes. Kinney Single Stage Pumps maintain low absolute pressures to 10 microns; Compound Pumps to 0.5 micron or better.

Send for Bulletin V45

### KINNEY MANUFACTURING COMPANY

3573 WASHINGTON ST., BOSTON 30, MASS.

New York • Chicago • Philadelphia • Los Angeles • San Francisco

We also manufacture Vacuum Tight Valves, Liquid Pumps, Clutches and Bituminous Distributors.

When inquiring specify CP A4396—see handy form pages 2-3

### "AFTER 14 YEARS OF SERVICE OUR

*Baker Truck*  
NEEDS NO  
NEW PARTS!"



"With relation to our Baker Truck, our superintendent tells us that surprising as it may seem, no new parts are necessary. Your representative told him what adjustments could be made, and it seems that they could do it all at the cannery. It looks like this is just one more blue ribbon for Baker. It is amazing that after all these years of service a general replacement of essential parts is unnecessary. It is certainly very gratifying to us."

—And gratifying to us, too! Letters like the above, from a food processing plant, prove that the sturdy construction and high standards of Baker engineering design mean dependable service and long life and that proper industrial truck care pays big dividends in continuous operation and low maintenance.

The truck in question was purchased in 1931. The original investment was written off in a short time by actual savings in handling costs and more efficient use of warehouse space. The owner has enjoyed 14 years of trouble-free service—possible only with electric trucks, which also mean quiet, smooth operation, lowest power costs and maximum safety.

Your Baker representative can show you how these advantages will apply to your handling problems. Or write us direct.

BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Rauland Company  
2163 West 25th Street • Cleveland, Ohio  
In Canada: Railway and Power Engineering Corporation, Limited

### Baker INDUSTRIAL TRUCKS

When inquiring specify CP A4397—see handy form pages 2-3



## Materials

**Description** — This stainless steel filter medium is available in a wide range of pore sizes. It is of strong and ductile porous structure, which shows the high corrosion resistance of stainless steel. These filters are made from fully alloyed stainless steel powder, the particles of which are welded together at the points of contact into a strong porous body, which in the form of thin sheets can be bent about a small radius. Conventional resistance welding techniques can be used to fabricate complicated apparatus. Average porous openings regularly supplied range from 4 to 165 microns (.00015—.0065 inches.)

MICRO METALLIC CO., Dept. CP, 99 Metropolitan Ave., Forest Hills, N. Y.

When inquiring specify CP A4398 — see handy form pages 2-3

## Versatile Plastic Materials Meet Needs for Modern Packaging

*Five formulas provide wide selection for utmost in protection and appearance*

**Uses** — This new line of materials covers a wide range of packaging requirements dictated by the modern trends to transparent plastic materials for protection and attractive appearance.

**Description** — The first of these is "Vuepak" — suitable either for products or packages. It is a transparent plastic that is tough, odorless, tasteless. Made of rigid cellulose sheets or in continuous rolls. It can be drawn, cemented, formed or folded into almost any shape. It can be combined with paper, cardboards, other plastics, wood, glass or metals and it can be printed, embossed or stapled. Dust and finger marks are easily wiped from its surfaces. "Vuepak" is available in six gauges from .005" to .020" in continuous rolls approximately 30" wide. These can be slit or can be supplied in blanks cut to specified sizes. Also available is "Fibestos", colored continuous acetate. This can be used to accent "Vuepak" packages.

Included in this selection are "Hot-Melts" available for the manufacture of cartons, — to be used as an adhesive and as carton closures. Heat sealing materials are offered which are adaptable for spot closures or for all over coatings, and they provide seals which cannot be ruptured without causing paper fracture.

Something new to the laminator of aluminum foil and paper is "Thalid." A solvent-free liquid adhesive makes possible continuous high speed lamination. Flash-heating at 375-400° F., starts the curing action — no further heat is necessary inasmuch as "Thalid" is exothermic. The lamination can be cured in the roll. Aluminum foil and paper composites laminated in this manner are highly resistant to delamination even when heat is applied in heat-sealing. Composites of aluminum foil and paper with "Thalid" for an adhesive have strength at low temperatures which suggests its use for frozen food packaging.

"Lustron" is a thermoplastic molding material. Molded "Lustron" packages can be produced in transparent or colored style and offer high dimensional stability. "Resinox" is a thermosetting molding material. Large packages can be readily molded by compression molding processes.

Complete information and literature regarding all these materials is available on request.

MONSANTO CHEMICAL CO. (Plastics Div.), Dept. CP, Springfield, Mass.

When inquiring specify CP A4399 — see handy form pages 2-3

MAY - JUNE, 1946

# PRUFCOAT

on concrete floors  
and walls, on or below  
grade, gives . . .

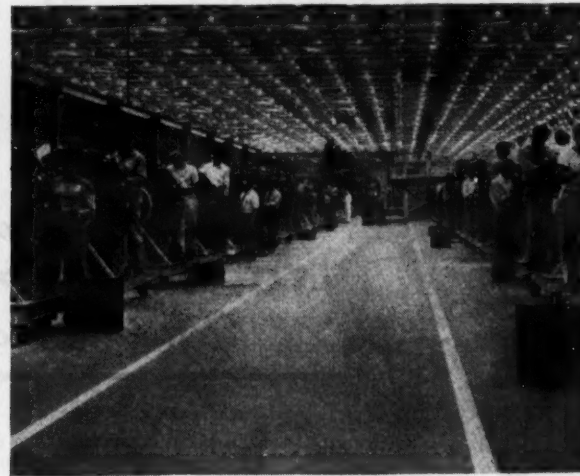
**POSITIVE PROTECTION**  
Against Acids, Alkalis,  
Oil and Water



Prufcoat will not blister, peel or soften when subjected to moisture from behind, or condensation on the surface, even when applied to concrete floors and walls far below grade.



Impervious to fats, oils and waxes, insoluble in alcohol and unaffected by salts, Prufcoat Protective Coatings are acid-proof as well as being proof against the alkali reaction of concrete.



The Prufcoat film formed after polymerization is tough, non-oxidizing and non-combustible — will withstand severe abrasion and can be washed with the strongest cleaning solutions.

**APPLIED BY BRUSH . . . BY YOUR OWN MAINTENANCE CREW, Prufcoat air-dries by evaporation of the volatile solvents in a matter of minutes.** Write today for complete descriptive folder. Address all inquiries to Prufcoat Laboratories, Inc., 50 East 42nd Street, New York City.



### SPECIFICATIONS

- ✓ Acid-Proof
- ✓ Alkali-Proof
- ✓ Oil-Proof
- ✓ Water-Proof

One material for application to all concrete, structural steel, floors, pipes, tanks and machinery.

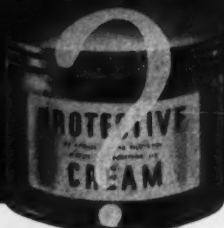
When inquiring specify CP A4400 . . . see information request blank, pgs. 2-3

## HOW MUCH PROTECTION?

"I WORK IN  
CHEMICALS"

"I WORK IN  
SOLVENTS"

"I USE  
PAINTS"



### There is a WEST Cream to Meet Your Industry's PARTICULAR Hazard

While any cream may give some degree of protection, West makes a series of protective cream formulas. Tests have shown that each specific hazard demands proper, specific, scientific protection. West's formulas are designed to furnish the fullest possible protection.

Send for booklet



When inquiring specify CP A4401 — see handy form pages 2-3

## Materials

### Carrot Oil Vitamin Products For Foods, Feeds & Pharmaceuticals

A booklet on "Carrot Oil Vitamin Products for Foods, Feeds & Pharmaceuticals," provides unusually comprehensive and practical treatment of the subject. The history of carrot oil is interestingly traced and the development of commercial Carotene is outlined. Several pages are devoted to detailed discussion of the use of carrot oil in which it is pointed out that Carotene cannot be produced synthetically. In spite of this, Carotene is available in quantity and can be incorporated into foods that are poor in Vitamin A activity. If the food be white it is not only enriched in Vitamin A but it takes on a golden yellow color at the same time. "Carex" — tasteless Vitamin A activity of vegetable origin that adds golden color — is suggested for use in butter, cheese, milk, cream, oleomargarine, salad dressings, salad and cooking oils, popcorn seasoning, mayonnaise, noodles, infant foods, breakfast foods, confectionery, macaroni, health breads and baked goods. "Carex" is a solution of guaranteed carrot oil as a source of vitamins in edible vegetable oil. The Vitamin A potency is 5000 units of Carotene per gram or 17,000,000 units per gallon of 7½ pounds. It also contains other fat soluble food factors present in carrots among which are natural anti-oxidants which help to protect against the oxidation and rancidity in foods, and Vitamin E. Other concentrations are available, as well as "Carex" in any specific vegetable oil. Of interest to animal feed producers is a section devoted to fortification of feeds. This also contains brief descriptions of features and properties of

## DRYERS

for the chemical industry

## RUGGLES - COLES

dryers in 9 distinct types

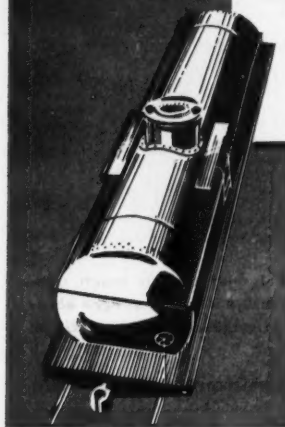
## HARDINGE

COMPANY, INCORPORATED • YORK, PENN.  
NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 4  
SAN FRANCISCO 5—501 Howard St. • 200 Bay St.—TORONTO 1

When inquiring specify CP A4403 — see handy form pages 2-3

## Furfuryl Alcohol PRICE REDUCED TO 19¢ PER POUND IN TANK CARS

*You have brought this price down*



### PROPERTIES OF Furfuryl Alcohol

(TECHNICAL)  
 $C_4H_3O \cdot CH_2OH$

Molecular Weight.....	98.10
Freezing Point, °C.....	-31
Boiling Range, °C (95%).....	167 to 177
Specific Gravity (25/25°C).....	1.130
Flash Point (open cup) °C.....	75
Refractive Index (25/D).....	1.4668
Vapor Pressure at 30°C, mm Hg.....	2
Surface Tension 25°C (dynes/cm).....	38.2

#### SHIPPING INFORMATION

Standard Containers: 9, 45, 90 and 500 lb. drums (net).	
Car load of Drums (80).....	40,000 lbs.
Tank Car, 8000 gal.....	75,000 lbs.
Cans and Drums non-returnable	

BECAUSE of the increasing use of Furfuryl Alcohol, we are able to announce a five percent reduction in its price to 19¢ per pound in tank cars at the plant. You who have made possible this decrease by your continued and expanding use of Furfuryl Alcohol are now able to effect a saving of close to \$1000 on every 10,000 gallon tank car.

And those of you who have not yet developed a commercial use for Furfuryl Alcohol might be reminded that the trend of prices for Furan Compounds has been consistently downward. The increased use of Furan Compounds, the economies resulting from large scale production and improved manufacturing facilities are reflected in lower prices. In Furfuryl Alcohol you have a real silver lining in the cloud of rising costs.

Here are some of the ways Furfuryl Alcohol is being used:

**DISSOLVING** complex dyes for use in textile printing.

**RESINIFYING** alone and in combination with other substances for use in castings, impregnants, coatings and cements.

**WETTING** abrasive grain (and plasticizing) in synthetic resin-abrasive mixes for manufacture of grinding wheels.

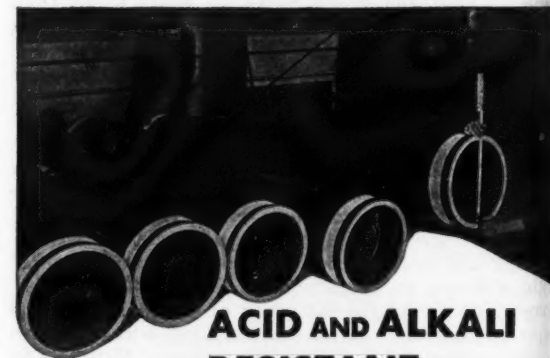
There is also available to you when requested on your letterhead, a wall chart 18" x 24" which shows typical reactions with Furfuryl Alcohol. This may give you more ideas of what you can do with this versatile alcohol. Quaker Oats Technical Staff is also ready to give you the benefit of its background of experience with the Furans in the application of Furfuryl Alcohol to your specific projects.

## The Quaker Oats Company CHEMICALS DEPT.

1930 BOARD OF TRADE BLDG., 141 W. JACKSON BLVD., CHICAGO 4, ILL.

FURFURAL • FURFURYL ALCOHOL • FUROIC ACID • TETRAHYDROFURFURYL ALCOHOL

When inquiring specify CP A4402 . . . see information request blank, pgs. 2-3



## ACID AND ALKALI RESISTANT

HAVEG is a molded plastic, which is completely resistant to most acids or alkalis. Its chemical resistance is uniform throughout its entire mass. It is not a lining or coating.

HAVEG Chemical Equipment is made in standard tanks, pipe, towers, fittings, valves, fume duct and related items, also a variety of special equipment.

Send for Bulletin F3 which gives complete design, engineering and application data.



When inquiring specify CP A4404 — see handy form pages 2-3

CHEMICAL PREVIEW



## Materials

"Carotene Feeding Oil," "Wheat Germ & Carrot Oil," and other similar products. Carotene Crystals in purified and food grades are also listed and their uses discussed. Copies of this booklet are available upon request. In addition there is a section on "Quintrex Extra Vitamins" — (bottled products for human use.)

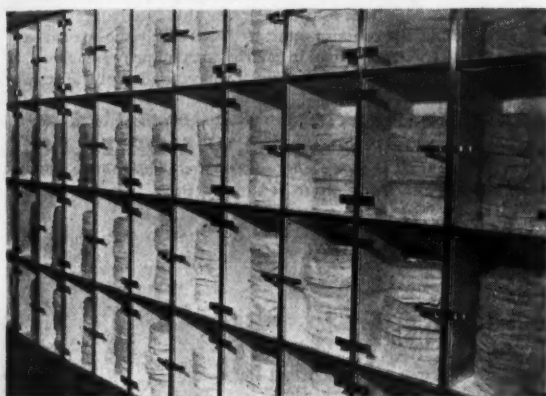
NUTRITIONAL RESEARCH ASSOCIATES, INC., Dept. CP, South Whitley, Ind.

When inquiring specify CP A4405 — see handy form pages 2-3

★

### "Tuf-Flex" Industrial Plate Glass For Sterilizing Ovens, Gauge Covers

*Highly resistant to breakage; has high  
resistance to temperatures*



High-impact glass used on suture cabinet doors

**Uses** — This "Tuf-flex" tempered plate glass has undergone a special process of reheating and sudden cooling as a result of which the outer surfaces are highly compressed, whereas the central portion is in tension, producing a condition highly resistant to breakage. It is used in frameless visual entrance doors, steam and oil pressure gauge covers and shelving. An interesting application of this versatile product is shown in the accompanying illustration — on a suture storage cabinet in plant of Brooklyn surgical organization.

**Features** — "Tuf-flex" glass is approximately three to five times stronger than plate glass in sustaining loads or resisting strain, approximately five to seven times more resistant to ordinary impact and more than three times more resistant to thermal shock.

**Description** — "Tuf-flex" can be ordered in circles, squares, rectangles and special shapes cut to pattern. Intricate designs should be submitted for approval as "Tuf-flex" cannot be cut, drilled or processed in any manner. Widths in regular plate run up to 11¼ inches and maximum sizes 56" x 108". In the suture cabinet use illustrated the glass is ¼ inch thick. Literature on "Tuf-flex" glass and other special industrial glasses on request.

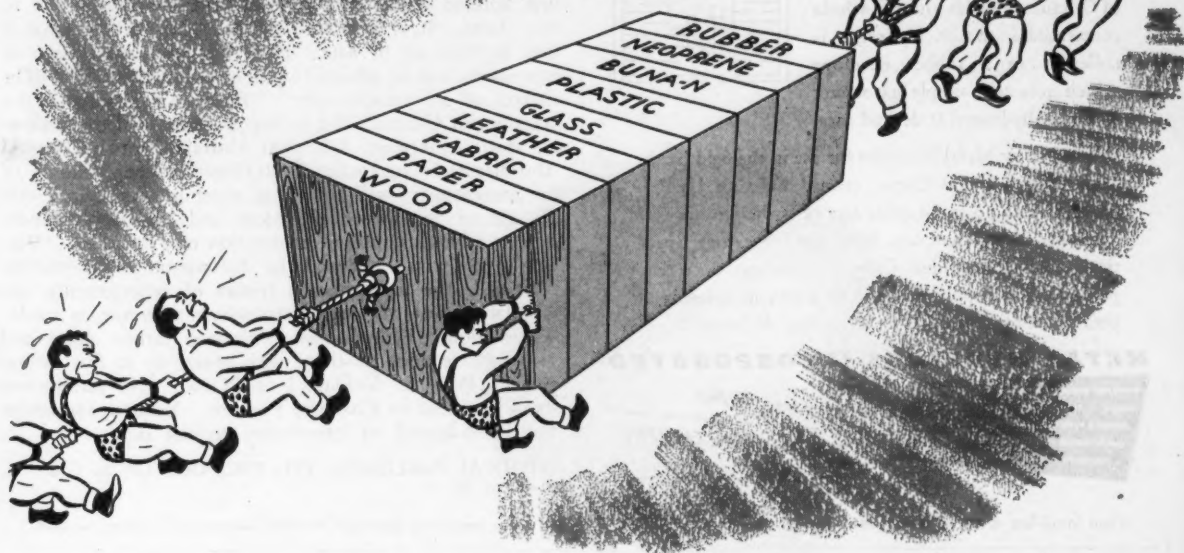
**LIBBEY-OWENS-FORD GLASS CO., Dept. CP, Toledo, Ohio.**

When inquiring specify CP A4406 — see handy form pages 2-3

MAY - JUNE, 1946

# UBABOND

## *bonds them all*



**Yes, UBABOND** joins a host of like and unlike materials *firmly together*. And this amazing *one-part, all-purpose* adhesive also is a cinch to apply — *always flows on smoothly, by brush or machine*.

**Drying time** of the film is *10 to 12 minutes* at room temperature. Other outstanding UBABOND characteristics, in addition to its unusual strength of bond, are *resistance to prolonged wear, extremely high oil resistance, excellent flexibility*

*and resistance to water.*

Performance-proved for *laminations* of wood, paper, fabric, rubber, leather, plastics and glass — for *bonding together* or to *many other materials* Buna N type elastomers, Poly-Vinyl Chloride, Vinyl Co-Polymers and Neoprene — and also for *splicing and repairing* low oil diffusion coatings . . . UBABOND is the *always-ready-to-use, one-part, all-purpose* adhesive for which you have been looking.



**TO BOND THEM ALL, USE UBABOND**

*Write for a sample today*

Address all inquiries to the Union Bay State Chemical Company, Rubber Chemicals Division, 50 Harvard Street, Cambridge 42, Massachusetts.



**Serving Industry with Creative Chemistry**

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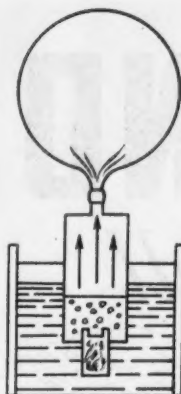
COATING COMPOUNDS • IMPREGNATING MATERIALS • COMBINING CEMENTS

**UNION BAY STATE**  
*Chemical Company*

When inquiring specify CP A4407 . . . see information request blank, pgs. 2-3

## CANNED HYDROGEN

A few holes are punched in the top of the small Metal Hydrides' can of Calcium Hydride and the whole submerged in water. Hydrogen is collected in a rubber envelope which acts as a simple gasometer to supply hydrogen at desired rate.



Developed by Metal Hydrides for use in the field by the U. S. Army Signal Corps, canned Calcium Hydride charges giving 6 to 24 cubic feet of hydrogen are now available for civilian use. Ideal for laboratory operations, Metal Hydrides' Canned Hydrogen is a fool-proof form of supply that can be kept conveniently on your stock room shelf. Order direct from the factory.

### METAL HYDRIDES INCORPORATED

HYDRIMET PRODUCTS • TITANIUM HYDRIDES • ZIRCONIUM  
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*Helping Industry to Put  
the Right Metal in the Right Place*  
20 Congress Street, Beverly, Massachusetts

When inquiring specify CP A4408 — see handy form pages 2-3

## Materials

### Encyclopedia of Hydrocarbon Compounds

Volume I of Encyclopedia of Hydrocarbon Compounds was announced early this year. This Encyclopedia will greatly simplify and expedite literary research and presents the following information: Molecular formula, structural formula, occurrence in Nature, names of the compounds, all known methods of preparation with complete bibliography, physical constants, methods of detection and determination, outstanding properties and reactions. The first volume deals with hydrocarbons containing one to five atoms. It is presented in loose-leaf form so that it may be kept up to date. Each year an annual issue of new sheets will be offered to purchasers of this book. The sources of information are: "Beilstein's Handbuch der organischen Chemie" and its supplements, and the following abstract journals: Chemical Abstracts, British Chemical Abstracts and Chemisches Zentralblatt. Other volumes of the encyclopedia will follow at short intervals, and with the aid of the loose-leaf system and the easy-to-handle binders additional useful information may be added. Volume I contents: Sources of Information; information presented; the supplements; system of arrangements, nomenclature, list of journals to which reference is made; abbreviations; hydrocarbons with one carbon atom and successive sections on those with more, up to five carbon atoms. Price of Volume I is \$15.00. No remittances should be sent to Chemical Preview. Request for folder may be indicated on information request slip.

CHEMICAL PUBLISHING CO., INC., Dept. CP, 26 Court St., Brooklyn, N. Y.

When inquiring specify CP A4409 — see handy form pages 2-3

## STOP CONDENSATION DRIP - PREVENT CORROSION



*Try this  
tested  
plastic  
cork  
coating*

**INDUSTRIAL  
NoDrip**

**A SURE CURE**—NoDrip, used and endorsed by leading industrial firms, forms a permanent, seamless jacket around pipes, tanks, vats, etc.; shuts out heat, cold, air, moisture; stops condensation dripping; prevents corrosion and rust. Acid, alkali and brine resistant. NoDrip protects and prolongs life of equipment, reduces costly maintenance and replacements. A trial in your plant will prove its merit. 1, 5 and 55 gal. drums. Order from your Supply House.

### EASY APPLICATION

Applied like plaster with brush, trowel or spray. Adheres to metal, cement, brick, wood.

NoDrip Handbook on Request

**J.W. MORTELL CO.**

Technical Coatings Since 1895  
530 Burch St. Kenosha, Ill.

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# Wax —

*has ALWAYS Been our Business!*

As pioneers of many outstanding developments in microcrystalline wax manufacture, Bareco's scientists have been helping to solve perplexing processing problems since 1928 — long before the impetus given the use of such materials by the protective demands of World War II. Bareco Waxes have always been the object of especial care in the selection of proper raw materials, manufacturing procedure and laboratory control. Test their unusual properties to solve your processing problems.

## BARECO Microcrystalline WAXES

**HIGH MOISTURE VAPOR RESISTENCE  
EXCELLENT ELECTRICAL AND ADHESIVE PROPERTIES  
ODORLESS — CHEMICALLY INERT — TASTELESS**

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**Samples available  
in black, white  
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**COTTON DUCKS  
AND  
FILTER FABRICS**

Burcott Mills regularly supplies cotton ducks and filter fabrics for the following industries: Chemical, Oil & Wax, Dyestuff, Cement, Cane & Beet Sugar, Food-Processing, Ceramic Processing, Paint, Mining, Quarry and Smelting.

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When inquiring specify CP A4412 — see handy form pages 2-3

CHEMICAL PREVIEW



## Materials

### Compounded Rubber Latexes Ready For Use Avoid Handling Problems

*Prepared to store well prior to processing and to age well in the finished products*

**Uses** — As adhesive applications in textile, paper, shoe, wood, foil, leather and fiber fields; coatings for metal, paper, fabrics; for saturating fibrous materials; dipping and coating forms to make thin walled products such as gloves, tubing; as binders in mastic flooring, non-woven textiles, etc.

**Features** — The use of these "Lotols" eliminates the necessity of industry compounding latex, one of the most difficult of raw materials to handle. Experts in the field of such processing perform the tasks of (1) perfecting the compound exactly to fit the requirements; (2) keeping up with technical developments; (3) eliminating spoiled batches; (4) maintaining inventories of the numerous compounding ingredients.

**Description** — "Lotols" compounded rubber latexes ready for use — and prepared to store well prior to processing and to age well in finished products. Coatings of aqueous dispersions may be deposited by conventional processes, — dipping, spreading, brushing, spraying, or pick-up roll methods. Shipments are made in steel drums of 55 U.S. gallons capacity or in railroad tank cars of 10,000 U.S. gallon capacity.

NAUGATUCK CHEMICAL CO., (Div. U. S. Rubber Co.), Dept. CP, 1230 Avenue of the Americas, New York 20, N. Y.

When inquiring specify CP A4413 — see handy form pages 2-3

### Silica Gel Products Indicate Humidity: Also Serve as Extender

*Change in color provides quick, economical means of detecting rise above safe levels; intermediate product serves as extender or coating*

**Uses** — The original of this series of silica gels was developed for use in dehydrated packaging. During the war it was found necessary to have a sentinel within sealed packages. This gave a warning if the relative humidity went above the "safe" point.

**Features** — A series of gels now covers a wide range of relative humidities for many applications where quick and economical indicators are needed.

**Description** — Now offered in an expanded series, "Tel-Tale" silica gels, impregnated with a number of chemicals by various methods and controls can be used to meet the individual needs in dealing with problems of moisture damage to goods in transit and storage. Another product, an intermediate in the manufacture of silica gels, is hydrogel. This is a colloidal form of silicon dioxide and has the physical characteristics of being "mullable." An interesting chemical feature of hydrogel is its chemical activity with alkalis, giving it a wide use in textile and wood-pulp industries. It has also found use in pharmaceuticals as a vehicle, as an extender and as a coating for paper.

DAVISON CHEMICAL CO., Dept. CP, Baltimore 3, Maryland.

When inquiring specify CP A4414 — see handy form pages 2-3

**It's a small world**



**IN BANGKOK** you can buy clocks made in New York. The same brands of soap are sold in Paris, France, and Paris, Texas.

Essential to this world-wide trade is good packaging—and one of the most important packaging materials is *paperboard*. It's light but tough and highly resistant to weather and water.

For the making of paperboard, Wyandotte Chemicals Corporation furnishes huge quantities of *soda ash* and *caustic soda*, *chlorine* and *calcium carbonate*.

The *soda ash* is used to reclaim waste material

and de-ink waste paper. It and *caustic soda* reduce the mixture of scrap paper, straw and wood to a workable pulp from which strong and durable containers are made.

*Chlorine* is important in the bleaching process. And when an attractive paperboard package is desired, Precipitated Calcium Carbonate helps produce a high-grade coating.

So, through its vast production of these chemicals, Wyandotte plays a vital part in helping speed American commerce over the seven seas.



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OFFICES IN PRINCIPAL CITIES

**WYANDOTTE CHEMICALS CORPORATION • WYANDOTTE, MICHIGAN**

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine  
Hydrogen • Sodium Zincates • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

When inquiring specify CP A4415 . . . see information request blank, pgs. 2-3

# Methods by Mystik



**Problem**—To quickly spray-paint designs, insignia, etc. on products. Eliminate costly hand-lettering and imperfect stenciling. Speed production.

**Solution**—Mystik SPRA-MASK sticks to surface, permitting clean-cut designs and one-man operation. SPRA-MASK delivered die-cut as needed. Cuts costs.

**FREE**—Sample of SPRA-MASK and literature on how Mystik Methods can cut costs for you. Write —Mystik Adhesive Products, 2629 N. Kildare Ave., Chicago 39, Illinois.

**MYSTIK**  
*Self-Stick*  
**ADHESIVE PRODUCTS**  
"ANYTHING THAT STICKS"

When inquiring specify CP A4416—see handy form pages 2-3



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GROEN  
MIXER TYPE  
KETTLE**

## FAMOUS FOR CHEMICAL PROCESSING

**THERE'S A TYPE  
FOR EVERY  
NEED**  
... standard or built  
to suit special  
requirements. Tell us  
your problem

Throughout the Chemical field for many years GROEN Stainless Steel Steam Jacketed Kettles have been noted for dependability. The Mixer Type shown here is typical. You can count on its reliable performance. It is expertly designed, engineered and tested for consistent service. Unexcelled for precise, accurate mixing. Get details on this. GROEN MFG. CO., 4535 W. Armitage Ave., Chicago 39, Ill.

WHEN BETTER METALS ARE MADE—GROEN WILL USE THEM

When inquiring specify CP A4417—see handy form pages 2-3

## Materials

### Versatile Anion Exchange Resin

For water conditioning; acid removal, recovery

**Uses**—This recent development provides an improved acid adsorbent or anion exchange resin with usefulness in the fields of water-conditioning and in other applications calling for the removal or recovery of acid. Known as "Amberlite" IR-4B, this improved resin produces "de-ionized" water comparable in quality with distilled water and provides an unusually convenient means of purifying drugs and biologicals by the elimination of acidic contaminants present or introduced during preparation. This unusual property, of particular value in research and analytical laboratories, now is utilized in processing the remarkable new antibiotic, streptomycin.

**Features**—"Amberlite" IR-4B has outstanding resistance to the leaching action of water, acids and solvents. (It now replaces "Amberlite" IR-4 for all industrial applications.) The range of usefulness is widened in decalcification processes where absence of contaminants in the treated product is essential. The very desirable stability of "Amberlite" IR-4B is evidenced in its resistance to the aggressive action of formaldehyde and formic acid as well as a variety of chemical reagents and solvents.

**Description**—Although "Amberlite" IR-4B is closely related chemically to "Amberlite" IR-4, its operational characteristics are notably superior. The new exchanger exhibits an increased rate of exchange, thus permitting higher flow rates during operation. Also it can be regenerated at higher rates than those recommended for "Amberlite" IR-4, and for certain applications, can be regenerated by strong alkalis such as sodium hydroxide. Other advantages include absence of objectionable color-throwing, lower rinse requirements and reduced packing. It is shipped in "free base" or regenerated form, ready for use without further initial treatment.

RESINOUS PRODUCTS & CHEMICAL CO., Dept. CP, Philadelphia, Pa.

When inquiring specify CP A4418—see handy form pages 2-3

### Degreasant Works Rapidly in Lower Dilutions

Alkaline factor pH 7; flash point 150° F.

**Uses**—This emulsifying degreasant for cleansing, degreasing and dewaxing machinery, motors, equipment, floors, and parts which are being processed prior to assembly is known as G-BEX 45-A.

**Features**—Fresh, clean odor. Does not corrode metals or harm skin. The alkaline factor of this compound is pH-7 and its flash point 150° F. Works very rapidly in lower dilutions.

**Description**—The degreasant is easy to use and may be applied with a brush or spray gun. It may be used in standard emulsion degreasing tanks, either cold or heated. When the dirt, oil and grease are thoroughly saturated, they are removed by flushing or hosing with water. A trace of the residual compound minimizes rusting after the washing process. The degreasant is packed in 7½ and 50 gallon drums and is available in commercial quantities in either concentrate (45-A) or ready to use form (G-BEX "D").

GAY-BEX CORP., Dept. CP, Nutley 10, N. J.

When inquiring specify CP A4419—see handy form pages 2-3

## For A Flashlight That Stays BRIGHTER—L-O-N-G-E-R

### USE IDEAL RECHARGEABLE FLASHLIGHT BATTERIES

If you use a flashlight a lot, and like a BRIGHT, DEPENDABLE LIGHT, then this is the battery for you! By regular recharging the IDEAL wet cell battery can outlast 400 or more dry cells. New improvements mean much brighter, longer-sustained and more uniform light at all times.

Saves up to \$10 on each battery. Fits all standard flashlight cases using two or more 1½" size D dry cells. Guaranteed.

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**IDEAL INDUSTRIES, Inc.**

(Successor to Ideal Commutator Dresser Co.)

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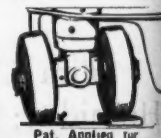
Sales Offices in Principal Cities

When inquiring specify CP A4420—see handy form pages 2-3



Write for Bulletin 88 345

This is What Happens  
When a WELD-BILT Hydraulic  
Lift Truck Strikes a BUMP  
(Only ONE Wheel  
Leaves the Floor)



Pat. Applied for



While on MOST Lift Trucks  
BOTH Front or Back Wheels Go  
Up — Tilting Load, or Making  
Steering Difficult

### WELD-BILT TOGGLE ACTION FRONT AXLE PREVENTS THIS

—Keeps Truck Level as Front Wheels Absorb Platform Tilt  
Without Strain on Front Steering Spindle . . . Avoiding  
Damage from Jar or Vibration — Floor Wear and Tear —  
Makes Trucking Easier, Faster.



**"Weld-Bilt"**

HEAVY DUTY  
HYDRAULIC LIFT TRUCKS

—Built in Capacities of from  
6,000 to 10,000 lbs. Narrow  
and wide models.

Portable Elevators  
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Tying Machines  
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Complete Descriptive Folder of WELD-BILT Handling  
Equipment sent upon request.

**WEST BEND EQUIPMENT CORP.**

275 WATER ST.

MATERIALS HANDLING ENGINEERS

WEST BEND, WIS.

When inquiring specify CP A4421—see handy form pages 2-3



## ALUNDUM Pure Oxide TUBES

For Higher Temperatures

Norton Company has developed improved ALUNDUM furnace tubes classified as "Pure Oxide Refractories."

These tubes which are essentially sintered alumina, without bond, greatly extend the utility of the ALUNDUM furnace tube line which in standard mixtures has met industry's needs for many years. The new mixtures provide even greater refractoriness and longer life.

Write for Bulletin No. R-25-E

**NORTON COMPANY — Worcester 6, Mass.**

ALUNDUM — Trade-mark Reg. U. S. Pat. Off.



When inquiring specify CP A4422 — see handy form pages 2-3

## FLANGE JACKS

...eliminate costly  
gasket replacement  
shut-downs!



An ingenious tool for opening pipe flanges for gasket renewal — quickly, easily and safely. FLANGE JACKS eliminate hazardous hammer and chisel methods and prevent damage to flange faces. Openings are smoothly made against great pressures, yet flanges are held in perfect alignment. FLANGE JACKS save time, reduce accidents... make better seals possible.

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DETAILS OR SEE YOUR  
NEAREST DISTRIBUTOR.

**T. G. PERSSON COMPANY**  
224 GLENWOOD AVE., BLOOMFIELD, NEW JERSEY

When inquiring specify CP A4423 — see handy form pages 2-3

## Materials

### Sticker & Spreader for Spray and Dust Compounds

*High protein soya flour; maximum water solubility;  
fatty substances reduced to less than 1%*

Uses — For pest control spray and dust compounds.

Description — Recommendation is 1/4 pound high protein soya flour per 100 gallons in sprays of lead arsenate, calcium arsenate, synthetic cryolite, etc. Quite soluble in soft water. Degree of solubility increases at alkaline concentrations above pH 6.5 and decreases at lower alkaline concentrations. To mix soya flour with other dry synthetic materials to prevent "balling" in spray tanks, place all dry materials in a bucket with just enough water to form a thick paste and work until the batch is smooth and free of lumps. Then add the paste to the liquid in the spray tank and stir into solution.

#### AVERAGE ANALYSIS

Protein	52.95%	Ash	6.15%
Fibre	2.69%	Fat	.65%
Other carbohydrates	29.11%	Moisture	8.46%
		pH	6.55%

CENTRAL SOYA CO., INC., (Products Division) Fort Wayne 2, Ind.

When inquiring specify CP A4424 — see handy form pages 2-3

### Alkylation Acid Regeneration Process

A recently issued bulletin describes an efficient method of providing a high blending agent for aviation gas. It explains this method by which fresh 98% acid is obtained from the spent alkylation acid, and includes a large diagrammatic arrangement of the process, with an accompanying explanation of each step and apparatus used in the process. Among the features mentioned are the economical method of forming make-up acid, the elimination of fuel for maintaining the furnace temperature, and the convertability of the plant to processing other refinery acid sludges. In this Chemico regeneration process a specially designed burner sprays the spent acid into a furnace which is maintained at high temperature by the combination heat of the hydrocarbon compounds in the spent acid and by the heat derived by the burning of additional fuel.

To save fuel and maintain a high strength of SO<sub>2</sub> gas, the air used for combustion is preheated by heat exchange with the hot combustion gases. The hydrocarbons are completely consumed and the gas, after being properly cooled and cleared of a slight carry over of sulphuric acid mist, is processed to clean acid of 98% or any other desired strength in a standard Chemico contact sulphuric acid plant. The process is almost as simple to operate as a sulphur burning contact plant. There are no objectionable fumes and no by-products to dispose of and the product acid is clean and ready for use in the refinery. The need for supplying fuel to maintain the high temperature in the furnace may be eliminated by blending light refinery sludges to a maximum of 20%, with the spent alkylation acid entering the furnace. Copies will be sent to those desiring them.

CHEMICAL CONSTRUCTION CORP., Dept. CP, 350 5th Ave., New York, N. Y.

When inquiring specify CP A4425 — see handy form pages 2-3

# WAXES

## CARNAUBA OURICURY CANDELILLA

CRUDE AND REFINED

## DOMESTIC OZOKERITE AND CERESINE

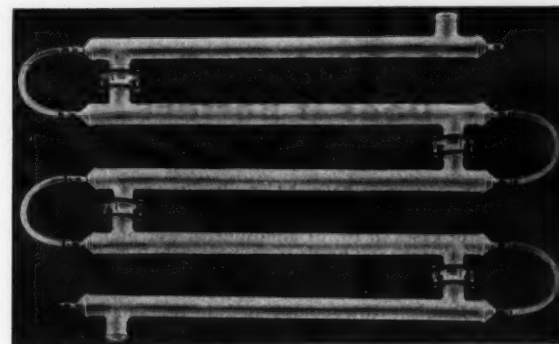


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**DISTRIBUTING & TRADING CO.**

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When inquiring specify CP A4426 — see handy form pages 2-3



### New Unit Heat Exchanger For Acid Service

This new corrosion-proof Knight Heat Exchanger is used for heating or cooling acids. Each unit is a separate, complete heat exchanger. Any number can be placed in a vertical or horizontal series to give capacity desired. One arrangement provides a rack of 10 units only 6' long, 21" wide and 5' high. A capacity of between 500 and 1,000 B.T.U.'s per hr. per F. degree can be secured in liquid to liquid transfer on each 6 ft. unit.

Maurice A. Knight, 405 Kelly Ave., Akron 9, Ohio

When inquiring specify CP A4427 — see handy form pages 2-3

**NOW**  
**CHLOROWAX**  
 RESINOUS CHLORINATED PARAFFIN

*by the Drum  
 -Ton-  
 or Carload*

**READY FOR  
 IMMEDIATE  
 SHIPMENT**

**SUGGESTED APPLICATIONS:**  
 Interior and Exterior Paints • Varnishes and Lac-  
 quers • Textile Coatings • Wood Impregnation •  
 Polishes • Floor Coverings • Glues and Adhesives •  
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**OUTSTANDING PROPERTIES:**  
 Chemically Inert • Highly Adhesive • Non-Toxic •  
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 patibility • Improves moisture vapor resistance of  
 some resins.

Investigate the possibilities of Chlorowax for your  
 peacetime products.

**Net Contents of Drum—250 lbs.**

Write Today . . . **CHLOROWAX** **DIAMOND ALKALI COMPANY**  
 for your copy of this **PITTSBURGH, PA.**  
 brochure. **and Everywhere**

When inquiring specify CP A4428—see handy form pages 2-3

## NIAGARA Aero Cooling Does It Better! And Saves Cooling Water Cost

### Close Temperature Control in Cooling Fluids

NIAGARA Aero Heat Exchanger cools liquids or gases to 10° of atmospheric wet bulb temperature and holds to tolerances of 2°F.

### Compressed Air After Cooling

Furnishes drier compressed air—eliminates half the moisture allowed by conventional after-cooling methods.

### Holding Quenching Baths to Temperature

Heat treaters increase production, improve quality, decrease rejections by using NIAGARA Aero Heat Exchanger to control quenching bath temperatures.

### Condensing Refrigerant Gases

NIAGARA Duo-Pass Aero Condenser increases refrigerating plant capacity, saves power. Duo-Pass prevents scaling and clogging of condensers.

NIAGARA AERO HEAT EXCHANGER is used in liquid cooling in industrial and chemical processes, water jacket cooling, hydraulic fluid, transformer oil, lubricating and cutting oil cooling, vapor and steam condensing.

## NIAGARA BLOWER COMPANY

Over 30 Years of Service in Industrial Air Engineering  
 Dept. CP-56, 6 E. 45th St. NEW YORK 17, N.Y.  
 Field Engineering Offices in Principal Cities

When inquiring specify CP A4429—see handy form pages 2-3

## Materials

### Methylene Bromide and Commercial 2 - Bromothiophene

*Products of interest to pharmaceutical and process industries in rubber, resin, wax fields*

**Uses**—Interest in thiophene compounds for the pharmaceutical industry prompted this commercially produced 2 - bromothiophene. This parallels the recent availability of thiophene to the chemical industry.

**Description**—Replacement of a benzene ring in a therapeutically active compound by the thiophene nucleus has been found to result in an increase in therapeutic activity in many cases, and 2 - bromothiophene is of value as an intermediate in the synthesis of such compounds.

**Uses**—Methylene bromide is described as having interesting solvent properties for alkaloids, rubber, gums, resins and waxes, and is useful in extracting these materials from natural sources.

**Description**—Its high density, approaching 2.5, suggests interesting applications to flotation processes and it is a stable, comparatively inexpensive organic compound of high density.

MICHIGAN CHEMICAL CO., Dept. CP, Saint Louis, Michigan.

When inquiring specify CP A4430—see handy form pages 2-3

★

### Silica Glass Laminate Opens New Fields in Electrical Insulation

*Applications include use on motors, induction heaters, high frequency oscillators*

**Uses**—Included in the many uses indicated for these silicone glass laminates are applications in connection with the production of motors, circuit breakers, induction heaters, high frequency oscillators and other electrical and electronic equipment. Other uses include handles for arc welding electrodes and for indestructible parts for devices subject to fire hazards.

**Features**—The material has withstood week long test at 250°.

**Description**—This silicone glass laminate is constructed of layers of glass cloth treated with a silicone resin and subjected to heat and pressure. The laminate is so resistant to heat that new areas in the electrical insulation field may be opened. Ordinary solder melts before this new insulating material breaks down under heat.

GENERAL ELECTRIC CO. (Chemical Dept.), Dept. CP, Pittsfield, Mass.

When inquiring specify CP A4431—see handy form pages 2-3

★

### Accelerator for Textile Resins

*Speeds action in finishing applications*

**Uses**—This new catalyst will speed up action of thermo-setting resins used in finishing textiles. The increasing use of resin finishes on textiles makes a catalyst of this type of interest.

**Features**—May be stored for prolonged periods as it is chemically stable. Solution is odorless.

**Description**—Known as "Aerotex" accelerator 187, the product is an acid salt "buffered to give maximum stability and optimum pH." Soluble in water, it is added to

*Only RIC-WIL STEAM CONDUIT  
 gives you ALL these advantages*



- 1 High-rating thermal insulation.
- 2 Structurally strong, shock-proof conduit housing.
- 3 Asphalt coating reinforced with felt wrapper.
- 4 Watertight presealed conduit ends.
- 5 Simplified connector for speedy installation.
- 6 Full-welded conduit design.

For the most efficient, maintenance free, permanent steam distribution system, specify Ric-wil. Conduit casing is 16-gage corrugated iron, seam welded and hot dip galvanized. Ends of conduit are presealed to keep insulation dry during installation. Conduit casing is protected by heavy asphalt coating reinforced with tension wrapping of asbestos felt. Prefabricated 21-ft. sections—also prefabricated elbows, tees, anchors and expansion loops, are furnished with ends fitted for easy field connection. Strength of conduit permits shallow trenches—minimizing excavation and backfill.

*Descriptive Catalog on request.*

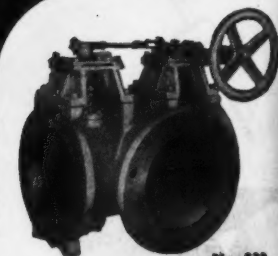
**RIC-WIL** INSULATED CONDUIT SYSTEMS  
 THE RIC-WIL COMPANY • CLEVELAND, OHIO

When inquiring specify CP A4432—see handy form pages 2-3

## TORQUE IS EQUALIZED in Quick Operating

### Three-Way Valves

15 to 900 psi  
 Control and shut-off  
 of volume and pressure  
 for air, gas, steam,  
 liquids and semi-solids



All R-S Butterfly Valves are precision engineered, metallurgically and mechanically, and this is the chief reason why the Three-Way Valves have met widespread approval and acceptance.

Designed for mixing and quick interchange service, these valves are adapted to pressures from 15 to 900 psi and for elevated or sub-zero temperatures. In manual operation, four to six revolutions of the hand wheel fully open or close the valve vane. Adjustable linkage is usually provided so that the mixture can be changed at will.

With a pressure drop across the valve, the vane tends to close itself. The torque on the closed right-hand vane (see illustration) is opposite to that on the open left-hand vane so that the torque is equalized and no excessive load is placed on the prime mover whether the operation is manual or automatic.

Available in sizes from four to sixty inches. Write for details and Catalog No. 14-B.

VALVE DIVISION

R-S PRODUCTS CORPORATION • 4831 Germantown Ave. • Phila. 44, Pa.

**R-S** Streamlined BUTTERFLY VALVES

When inquiring specify CP A4433—see handy form pages 2-3



## Smart Lad, that Waldo



Yes, little Waldo knows it's smart to protect the side that's exposed. Some day, when he's specifying materials for plant equipment, one of his "musts" will be Ingaclad Stainless-Clad Steel.

For this famous, time-tested Borg-Warner product provides full stainless protection on the side that's going to "take it."

We also produce Solid Stainless and Heat-Resisting Steels. Write, wire or telephone—no obligation.

### INGERSOLL STEEL DIVISION

BORG-WARNER CORPORATION  
310 South Michigan Avenue, Chicago 4, Illinois  
Plants: Chicago, Illinois; New Castle, Indiana; Kalamazoo, Michigan

**INGACLAD**  
STAINLESS-CLAD STEEL

When inquiring specify CP A4434 — see handy form pages 2-3

## SLY Dust Collectors

Inexpensive to Install and Maintain

Pay  
for Themselves

A typical SLY Dust Collector inside building with hopper discharge through floor. This filter collects the dust from grain handling equipment. Similar installations collect alfalfa meal.

**S**LY Dust Control Systems save thousands of dollars yearly in plant maintenance and improved production, in the recovery of valuable materials—in various kinds of manufacturing operations such as crushing, grinding, conveying, loading, separating, and other operations. They are inexpensive to maintain and often repay their cost in a comparatively short time. Ask for Bulletin 98 and tell us your problem.

**5 SLY**  
Superiorities

1. Greater filtering capacity — 2. Taut bags for better dust removal — 3. Bags more easily replaced — 4. Automatic control — 5. Simpler shaker mechanism saving operating and maintenance costs.

**SLY** THE W. W. SLY MFG. CO.  
4754 Train Ave., Cleveland 2, Ohio

When inquiring specify CP A4435 — see handy form pages 2-3

## Materials

the resin bath just before it is ready for use on fabrics. The solution acts to hasten the polymerization of the resins. The compound has the appearance of fine white crystals. Bulletin 110 gives additional information.

AMERICAN CYANAMID CO., (Textile Div.) Dept. CP, Bound Brook, N. J.

When inquiring specify CP A4436 — see handy form pages 2-3

## Flaked Bottle Washing Preparation Is Convenient to Handle — No Dust

A pocket-size folder offers helpful information for better bottle washing. It gives detailed suggestions on the use of phosflake — preparation of flake caustic soda and Tri-Sodium Phosphate. As its name suggests the product is in flake form, with the Tri-Sodium Phosphate an integral part of the composition. It is therefore convenient to handle, without dust or possible segregation difficulties of mechanical mixtures.

In discussing bottle washing procedure, the text of the booklet points out that the length of time during which bottles are in actual contact with the cleaning solution plays an important part in the effectiveness of the sterilizing treatment. The sterilizing efficiency increases with the time of contact. Bottle washing solutions of Phosflake solutions should be kept at a minimum temperature of 120 degrees F. as required by law in many states. In addition to various suggestions the booklet gives pointers on mixing, re-strengthening and re-charging. Copies are available on request.

PITTSBURGH PLATE GLASS CO. (Columbia Chemical Div.), Dept. CP, Pittsburgh 13, Pa.

When inquiring specify CP A4437 — see handy form pages 2-3

## Floor Resurfacing Material

For resurfacing; patching masonry floors

**Uses** — Especially formulated to resist the effects of excess water, oils, greases, fats, fruit and vegetable acids, this flooring material can be used for both resurfacing and patching concrete, stone, brick, or tile floors. It cannot be used on wood floors.

**Description** — It is well suited to the requirements of breweries, dairies, packing houses and many other processing plants. Only water is added in accordance with instructions to prepare this patching or resurfacing material for application. It trowels to a smooth, dustless finish. "Chem-Rock" is packed in 1000, 500, 250 and 100 pound units.

ROCK-TRED CORP., Dept. CP, 629 West Washington St., Chicago 6, Ill.

When inquiring specify CP A4438 — see handy form pages 2-3

## Technical Data on Beryllium

A recent publication presents technical material. Is of interest to scientists and engineers in the field of ceramics, greases and other fields where beryllium and salts may be applied. Published in loose leaf form with a binder to hold future data. Copies may be had on request.

CLIFTON PRODUCTS, INC., Dept. CP, Painesville, Ohio.

When inquiring specify CP A4439 — see handy form pages 2-3

## Free booklet



Carload shipments unitized with LOAD-LOK—a special National adhesive—show breakage reductions up to 100%. Here's proof: A seven carload liquor shipment shows: 1 car—5 bottles broken; 1 car—2 broken; 3 cars—none broken; 2 cars—one broken in each.

LOAD-LOK is automatically applied in two parallel strips to the bottom surface of each shipping unit—by an inexpensive glue pan installation in your regular loading conveyor. Each unit is then glued into a full unitized carload—or palletized in the freight car or delivery truck. The glue cost is insignificant. No other equipment is required.

Full details are given in National's free handbook: GLUED LOADS. Address: 270 Madison Avenue, New York 16.

**National**  
ADHESIVES

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE

When inquiring specify CP A4440 — see handy form pages 2-3

## THE "ENTOLETER" SYSTEM GIVES CONTINUOUS INSECT CONTROL

Your Products Need  
This Proved Protection Now.



Avoid spoilage from insect infestation... insure the high standards of your products. You destroy all insect life in free flowing, dry materials with "ENTOLETER" Continuous Insect Control. Send now for facts on the low-cost "ENTOLETER" system. ENTOLETER DIVISION. The Safety Car Heating & Lighting Co., Inc., 1183 Dixwell Ave., New Haven 4, Connecticut.

**ENTOLETER**  
INFESTATION DESTROYER

CONTINUOUS INSECT CONTROL SYSTEM

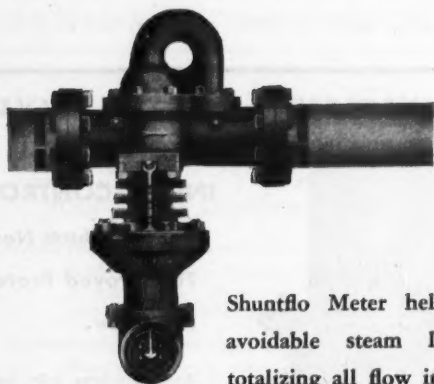
When inquiring specify CP A4441 — see handy form pages 2-3

## BUILDERS SHUNTFLO METERS



### Win bout with Father Time...

Seventeen years in the same line with only incidental attention! That's how long Builders Shuntflo Meters have been on the job at Wickes Boiler Co., Saginaw, Mich. Now a good "rub down" will put them in trim to continue their fight against steam waste.



Shuntflo Meter helps detect avoidable steam losses by totalizing all flow in lines 1"

to 12", even when flow far exceeds meter's normal capacity. Model SMKS is dependable, simple and rugged; self-driven, it uses no electricity or mercury and has no clock to wind. Bolts directly into the line as readily as a valve.

For Bulletin 349, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 47 Coddling St., Providence 1, R. I.

## BUILDERS-PROVIDENCE

BUILDERS

When inquiring specify CP A4442 — see handy form pages 2-3

## ★ INSTRUMENTS of CONTROL

### Absolute Pressure Indicator Reads Direct

*Measures vacuum in terms of pressure above absolute zero*

**Uses** — To overcome the difficulty of accurate measurement of high vacuum, where lack of adequate barometric pressure indication, or error in correction computations is possible, this absolute vacuum pressure indicator has been developed. It eliminates the effect of barometric pressure changes and the true vacuum is indicated directly without correction or adjustment. In such varied fields as high vacuum distillation and radio tube loading the speed and accuracy permitted mean greater production, lower costs and closer quality control.

**Features** — A "friction free" linkage is employed to achieve sensitivity and accuracy. Durability is provided by the design which uses an evacuated capsule as a measuring element.

**Description** — Vacuum measurement is accomplished by admitting the unknown vacuum to the air tight instrument case where it acts on an evacuated capsule. Movement of the capsule is transmitted by a lever system to the pointer which registers the vacuum on a dial as a pressure above absolute zero. This direct measurement is possible because the zero point on the dial corresponds to absolute zero, therefore, application of any vacuum above absolute zero represents a positive pressure force to actuate the instrument. Ranges available are 0-20 mm. mercury, 0-50 mm. mercury and 0-100 mm. mercury. Additional details may be secured by requesting technical publication No. 256.

WALLACE & TIERNAN PRODUCTS, Dept. CP, Belleville, N. J.

When inquiring specify CP A4443 — see handy form pages 2-3

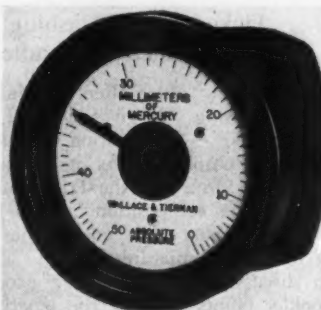
★

### Indicates Presence of Oxygen and Hydrogen Impurities

*Instrument accurate to plus or minus 2% of range*

**Uses** — Originally designed for determining oxygen impurities through a "precious metal catalyst" this device has been developed to measure presence of hydrogen in inert gases, nitrogen, carbon dioxide and saturated hydrocarbon gases. It is suitable for industrial and laboratory uses. For industrial applications it will check losses from large batches of product spoiled by traces of oxygen in sintering atmospheres; and also help to avoid spoilage by detecting and measuring oxygen impurity in the gases used for filling tubes and lamps. It has use, too, in detecting oxygen in the atmosphere of heat treating and brazing furnaces.

**Features** — Instrument indicates the presence of from .001



High vacuum gauge independent of barometric pressure

per cent to 1.0 per cent oxygen impurities with an estimated accuracy of plus or minus 2% of the range in use. The unit may be furnished with a circular chart potentiometer recorder or air operated controller.

**Description** — A small quantity of oxygen, present as an impurity in inert gases, is detected and measured by the increase in temperature of the gas sample which results from combination of the oxygen impurity with hydrogen. Except in cases where the gas being tested already contains sufficient hydrogen, a small amount, generated in a self contained electrolytic cell is mixed with the sample. After passing through a drying chamber and an activated charcoal purifier the sample enters a calorimeter containing a precious metal catalyst. During passage over the catalyst, combination of any oxygen present, with hydrogen is effected. The heat liberated is directly proportional to the concentration of oxygen in the sample, the amount of hydrogen present or added being excess of that required to combine with the maximum percentage of oxygen which the indicator will measure. A thermocouple, with the cold junction located in the gas stream ahead of the catalyst, and the hot junction located in the gas stream emerging from the catalyst chamber, indicates the temperature rise in the gas caused by the reaction. There is a straight line relationship, within the range of the instrument, between the voltage thus generated and the percent oxygen present. By means of a slight change in the electrolytic cell, whereby excess quantity of oxygen instead of hydrogen is introduced into the sample, the instrument



Simple — Accurate —

## WEIR METERS

for Waste Measurement

Float-and-cable Weir Meters developed by Foxboro offer simple, accurate measurement of liquid flow. Widely used in sewage, chemical processes, and industrial waste disposal.

The Foxboro Weir Meter is extremely simple. Operates through motion of float connected with V-notch, rectangular or Cippolletti weirs — or Parshall flumes. Motion is transmitted by cable to accurate recording or integrating mechanisms. Direct-reading, uniform flow scale — copper, rubber-covered, or ceramic floats.

Write for detailed Bulletin A298. The Foxboro Company, 42 Neponset Ave., Foxboro, Mass., U. S. A. Also Montreal, Canada. Branches in principal cities.

FOXBORO

WEIR  
METERS

When inquiring specify CP A4444 — see handy form pages 2-3



may be modified to detect and measure small quantities of hydrogen impurity in other gases. Inasmuch as the activity of the catalyst might change over a long period, a means of recalibrating the instrument is provided. For purposes of calibration, the test gas, after excess hydrogen has been added, is diverted through a large catalyst so that all oxygen present is removed by reaction with the hydrogen. Oxygen is then added at a measured rate, generated at a third electrode in the electrolytic cell. The rate at which oxygen is generated is regulated by measuring and controlling the electrolysis current. Since the rate of flow of de-oxygenized sample gas is indicated by a flowmeter and the oxygen is added at a known rate, the percentage of oxygen may readily be calculated and the galvanometer reading thus directly translated into per cent oxygen.

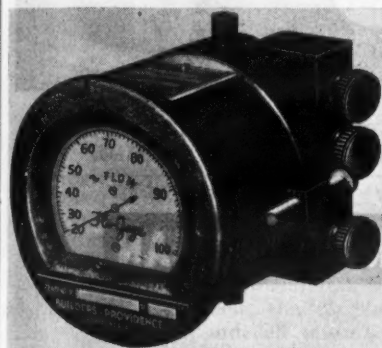
BAKER & CO., INC., Dept. CP, Newark 5, N. J.

When inquiring specify CP A4445 — see handy form pages 2-3

★

## Small Size Flow Rate Indicator.

Promotes efficient uses of liquids or gases



Midget flow gauge measures water, steam, air

**Uses** — New midget size rate of flow indicator is suitable for measurement of water, steam, air and other fluids. May be applied to flow indication applications of steam or air for agitating contents in vats, tanks, dryers, kilns or ovens; of

cooling water for condensers, tanks, process equipment or machines; of cooling oil for electrical equipment; of oil and gas in absorption plants, of fuel gas or fuel oil to burners; of air to fermentation vessels; of dry or liquid chemicals being fed to a main flow by chemical feeders and many other uses.

**Features** — The Flo-Gage is a simple, accurate, easily read, sensitive low cost unit. It requires little space, is easy to install, and requires no mercury or auxiliary power. The gauge may be applied to lines where orifices, venturi tubes and insert nozzles are used as differential producers. Liquid level and pressure difference indications may also be measured.

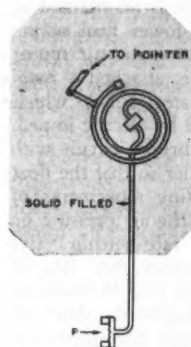
**Description** — The gauge mechanism is enclosed in a heavy case having a thick pre-stressed glass window and is suitable for operating pressures up to 500 p.s.i. It has no stuffing box and can be furnished to measure such units as gallons per hour, cubic feet per minute, etc. and indicates rate of flow within 2% of full scale. Illustrated bulletin 300 describing the Flo-Gage is available on request.

BUILDERS-PROVIDENCE, INC., Dept. CP, Providence, R. I.

When inquiring specify CP A4446 — see handy form pages 2-3

MAY - JUNE, 1946

# How to measure GOO



**I**F YOU'RE all gummed up with the problem of measuring the pressures of viscous fluids such as slurries, soap, paper pulp, and similar materials which tend to clog conventional *open* pressure systems, here's a way out! Use a Taylor Diaphragm-Type Volumetric Pressure Gauge that can't clog. It is

a completely sealed system filled with a fluid which acts as a pressure transmitting medium.

This closed system is also ideal for measuring the pressures of corrosive fluids in the chemical and petroleum industries. Only a flexible corrosion-resistant diaphragm and a flange are in contact with the fluid to be measured.

The Taylor Volumetric Pressure Instrument is supplied with an 18-8 stainless steel diaphragm. Diaphragms of copper, steel, monel tantalum or silver are optional. Capillary lengths up to 100 feet are possible, depending upon range of sys-

tem. The system can be supplied with any standard pressure range between the limits of 0 to 50 psi and 0 to 1000 psi, depending upon operating temperatures and flange ratings.

Taylor has spent years developing pressure measuring elements available in indicating, recording and controlling instruments. If you have a pressure problem call your Taylor Field Engineer. Or write for our new Pressure Catalog 76JF. Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording and controlling temperature, pressure, humidity, flow and liquid level.*

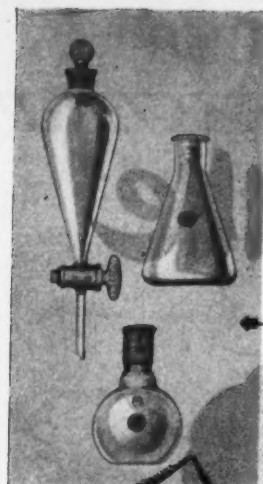
**Taylor Instruments**

— MEAN —

**ACCURACY FIRST**

IN HOME AND INDUSTRY

When inquiring specify CP A4447 . . . see information request blank, pgs. 2-3



Added Protection For  
Light-Sensitive Substances

**PYREX**  
LIFETIME RED

LOW ACTINIC GLASSWARE

HERE is a colored glassware which can be of utmost value in your food research and control work.

It combines the ability to retard deterioration due to light influence\* with all the other protective qualities of Pyrex Chemical Glass, No. 774 — mechanical strength, chemical stability and thermal resistance. The LIFETIME RED color is permanent—an integral part of the glass itself.

Now available in a variety of useful laboratory forms—beakers, flasks, tubes, pipettes, etc.—“Pyrex” Low Actinic Ware is fully described in Catalog LP 34.

\*Approximate percent wave-length transmittance in 1 mm. of “Pyrex” Brand LIFETIME RED Low Actinic Glassware: 3000 Angstroms .0% 4000 Angstroms .1% 5000 Angstroms .4%

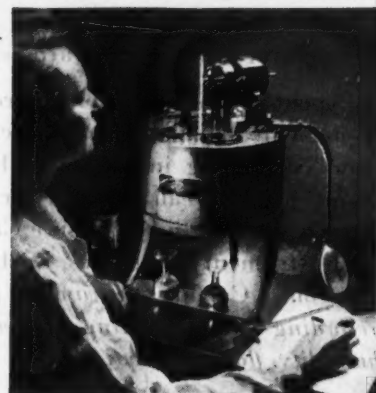
“PYREX” is a registered trade-mark and indicates manufacture by

CORNING GLASS WORKS • CORNING, N. Y.

**PYREX** Brand LABORATORY GLASSWARE

When inquiring specify CP A4448 — see handy form pages 2-3

## In ETHYL Laboratories



## PALMER Thermometers

are used for Accurate Research

With the Ethyl Corporation it's Accuracy first in their famed laboratories. Palmer Thermometers meet highest standards for accuracy, durability and dependability. The Patented “Red-Reading-Mercury” feature permits easy reading at greater distances — even through smoke and steam. You'll always find PALMER High Quality is standard the nation over.

WRITE FOR CATALOG.

**The PALMER Co.**

MAKES INDUSTRIAL, LABORATORY, RECORDING & DIAL THERMOMETERS  
2514 NORWOOD AVE., CINCINNATI 12, O.  
CANADIAN PLANT: KING AND GEORGE STS. TORONTO 2

When inquiring specify CP A4449 — see handy form pages 2-3

Page 54

## Instruments

### Viscosity Controlled Automatically

Continuous viscosimeter indicates, records and controls

**Uses** — Blending of lub oils to a desired viscosity is accomplished with a continuous viscosimeter. Termination of chemical reactions, when a definitive viscosity is reached, such as in plastic and varnish cooking reactions, are other suggested applications for this equipment.

**Features** — Continuous viscosity measurement eliminates the need for constant temperature baths, rinse tubes, measuring vials and stop watch readings of efflux times. Fluid viscosity is controlled by the use of a steam heating valve to alter temperature; or a blending line feed valve to vary blending percentage. Scale readings may be in Centistokes, S. S. U. or other units.

**Description** — In one rotameter are placed two floats, one above the other. The lower one is arranged to be viscosity immune and it rises and falls only with flow rate changes. The upper float is viscosity sensitive and rests directly on the lower float only so long as there is no fluid flow through the continuous viscosimeter. As soon as flow commences a gap appears between the two floats since the upper one is lifted both due to fluid flow rate and fluid viscosity. Therefore the upper float always rises a greater distance than the lower float and the gap will become greater as viscosity increases. Thus the size of the gap is a function of fluid viscosity. Be selecting any particular flow rate which will give a convenient elevation of the lower float as a reference line the upper float elevations may be marked off as viscosity graduations. A branch line, from the main line in which the fluid to be measured for viscosity flows, takes a constant flow of a sample. This sample is maintained at a constant flow rate by means of the lower float acting through a recorder controller on an automatic air motor diaphragm valve. To the lower float is attached a magnetic armature (sealed in a stainless steel tube) which hangs downward into a well, surrounded by electric impedance coil windings, and arranged in a bridge circuit with similar coils in the dual recorder-controller so that the float movements are followed by corresponding movements of the flow rate pen and by adjustment of the air pressure on the diaphragm of the automatic flow rate setting valve which thus operates to maintain a constant flow rate of liquid through the rotameter-viscosimeter and to maintain the lower float at a position corresponding to the flow rate setting graduation. As soon as the lower float starts rising with commencement of flow, the upper float will also rise. As soon as the lower float position has been stabilized any further movement of the upper float becomes a function of viscosity change and the scale alongside the upper float, as well as the outer pen of the recorder, will give the viscosity reading. The automatic controller which operates the air motor diaphragm valve in the branch line is, of course, connected to the inner pen arm, the one that reads flow rate. Automatic control of the fluid viscosity is accomplished by an additional automatic controller which is connected to the outer pen arm, the one that reads viscosity, and is used to operate a diaphragm valve placed in a steam or hot water line to correct viscosity by varying the fluid temperature or in a blending line to correct viscosity by adding more or less liquid of a different viscosity. Engineering data is available on request by writing to Dept. 9 E-2.

FISCHER & PORTER CO., Dept. CP, Hatboro, Pa.

When inquiring specify CP A4450 — see handy form pages 2-3

# RUGGED

**PRINCO**  
SEVERE SERVICE  
THERMOMETERS

Here are the “PRINCO” Thermometers for those really TOUGH service conditions! Cases are extra heavy castings, specially designed for maximum strength. Frames and cases are BOLTED together. Glasses are extra heavy plate to withstand shock and vibration. Cases completely sealed against fumes and moisture. Built-in dehydrator prevents fogging or condensation. Extra protection for mercury tubes assures maximum service life.

Available in all standard case angles and temperature ranges, or to your specification. RED READING MERCURY or Casary-backed tubing optional. Wide selection of “Princo” Separable Sockets in a variety of materials. Ask for Bulletin “E”.

**PRECISION**  
THERMOMETER & INSTRUMENT COMPANY

PRECISION THERMOMETERS FOR INDUSTRY

1424 Broadview Ave. - St. Louis, Philadelphia 30, Pa.

When inquiring specify CP A4451 — see handy form pages 2-3

## BARBER-COLMAN

### POWER UNITS

TO POSITION  
VALVES, DAMPERS,  
AND OTHER UNITS

These POWER UNITS are ideally suited for industrial applications. They feature built-in limit switches and a high torque motor with gear reduction, oil submerged, for long life and dependable operation. Control action may be governed by a recording or indicating controller or other contact making control instruments.

POWER UNITS are available for “on-off”, floating, and proportioning modes of control, including proportioning with manual or automatic resetting.

Write for  
Bulletin F-1912  
“POWER UNITS”

**BARBER-COLMAN COMPANY**  
1201 ROCK ST. • ROCKFORD, ILL.

When inquiring specify CP A4452 — see handy form pages 2-3

CHEMICAL PREVIEW



## Tachometer Works on New Principle

Accuracy —  $\frac{1}{4}$  of 1%

**Uses** — Any speed measurement problem requiring remote indication or recording.

**Features** — Unit is stabilized against any line voltage changes. Uses no vacuum tubes thus eliminating warm up time. Measures linear speeds as low as  $\frac{1}{4}$  foot per minute and rotational speeds as low as 1 revolution per minute.

**Description** — Electric tachometer operates on a new principle — no generator is employed. The head consists of a contact making mechanism which is connected to the indicating unit by an electric cable. Oscillating contacts periodically charge a condenser through a DC milliammeter. The circuit constants are chosen so that the milliammeter reading does not correspond to each charge but reads the average current. Circuit is designed so that the current is proportional to the RPM of the spindle which operates the contact making mechanism. Operates on 115 V. AC, or self contained batteries. Detailed information on request.

METRON INSTRUMENT CO., Dept. CP, 430 Lincoln St., Denver 9, Colo.

When inquiring specify CP A4453 — see handy form pages 2-3

★

## Immersion Heater Includes Thermostat and Safety Device

Neon light indicates heater operation

**Uses** — Suitable for use wherever automatic electric heating of liquids is required, this combined heater and its automatic control is installed in processing kettles, industrial water tanks, stills, sterilizers, pipe lines, glue pots and similar applications.

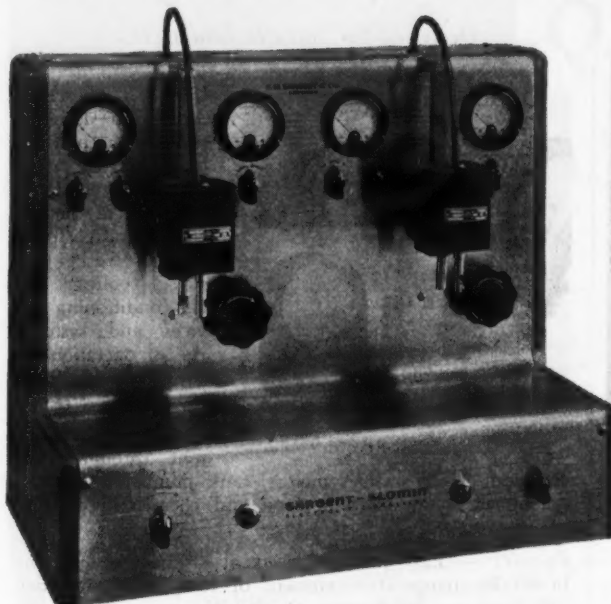
**Features** — The built in safety control protects the heater against overheating should the liquid level fall and expose it to the air. Temperature setting is easily accomplished by turning a readily accessible screw through a range from ambient to 350° F. Thenceforth the heater will maintain the desired temperature within plus or minus 5° F. A neon pilot light indicates if the heater is functioning properly and also aids the operator in setting the heater to the desired working temperature.

**Description** — The heating element consists of a helical coil of nickel chromium centered in a seamless copper or steel sheath, with magnesium oxide compacted between the element and sheath. The combination of small sheath diameter and high thermal conductivity of the refractory separating the heating element from the sheath provides quick heater response to the action of the thermostat. The thermal link, that bridges the heating element and the thermostat transmits heat quickly to the thermostat, thus resulting in closer temperature control. Refractory insulation has electrical insulating properties which prevents the sheath from becoming electrically energized. Heaters available in wattage ratings of 250, 500, 750 and 1,000. More data is available in Bulletin 2132.

AMERICAN INSTRUMENT CO., Dept. CP, 8010-8020 Georgia Ave., Silver Spring, Md.

When inquiring specify CP A4454 — see handy form pages 2-3

# NEW SARGENT-SLOMIN



## Electrolytic Analyzers

### FOR HIGH SPEED QUANTITATIVE ANALYSIS OF

Ferrous and non-ferrous metals and alloys.  
Electroplating solutions and electro-deposits.  
Ores and minerals.  
Metals in biological materials.  
Metals in foods, soils, etc.  
Forensic materials.  
Micro and semi-micro specimens.

### Designed for continuous trouble-free performance

The new Sargent-Slomin Electrolytic Analyzers represent a complete re-design of the original Slomin instruments. Each unit is mounted within a case consisting of a one-piece stainless steel panel, beaker platform and apron with sturdy end castings. All models are completely self-contained and operate from 50-60 cycle electric circuits—no auxiliary generators or rheostats are required.

The two position analyzers consist of two complete, independently operating analyzer circuits. Duplicate or check analyses can be run at the same time or two different analyses can be run simultaneously at different current densities.

The central electrode is rotated by a new synchronous capacitor wound motor, operating at 550 r.p.m., especially engineered for this application. Under development for five years, this motor has been thoroughly tested and approved for continuous operation. Fully enclosed for protection against corrosive fumes—the shaft, sleeve bearings, and cap are made of stainless steel.

Outstanding features of this rugged motor are:

Greater output than any motor of similar characteristics and size.

No internal switches or brushes.

No "permanent" magnets—full output for long service life.

Fully synchronous—no speed change with change of load.

All parts of the new electrode chucks are made of stainless steel. A simplified design utilizes a positive retaining spring which permits quick, easy insertion of the electrodes and maintains proper electrical contact.

These new analyzers used with the specially designed high efficiency corrugated electrodes rapidly produce smooth, close grained deposits at maximum current density.

**S-29460 ELECTROLYTIC ANALYZER** — Sargent-Slomin, One Position, with Heating Plate. For operation from 115 Volt, 50-60 cycle circuits.....\$225.00

**S-29462 DITTO.** But for operation from 230 Volt, 50-60 cycle circuits .....\$240.00

**S-29465 ELECTROLYTIC ANALYZER** — Sargent-Slomin, Two Position, with Heating Plate. For operation from 115 Volt, 50-60 cycle circuits.....\$350.00

**S-29467 DITTO.** But for operation from 230 Volt, 50-60 cycle circuits .....\$375.00

**S-29632 ANODE**—Platinum gauze, Corrugated Form, High Speed. (Patent pending).....\$ 40.00

**S-29672 CATHODE** — Platinum gauze, Corrugated Form, High Speed. (Patent pending).....\$ 30.00

E. H. SARGENT & COMPANY, 155-165 East Superior Street, Chicago 11, Illinois

Michigan Division: 1959 East Jefferson, Detroit 7, Michigan

**S A R G E N T**  
S C I E N T I F I C L A B O R A T O R Y S U P P L I E S

When inquiring specify CP A4455 . . . see information request blank, pgs. 2-3

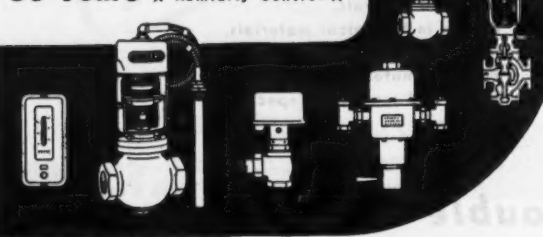


When you want accurate and dependable automatic temperature or humidity control for Industrial Processes or Air Conditioning Systems call in a Powers engineer. With a very complete line of self-operating and compressed air operated controls we are well equipped to fill your requirements.

Write for Circular 2520

THE POWERS REGULATOR CO.  
2756 Greenwood Avenue, CHICAGO

Offices in 47 Cities—See your phone directory  
of Temperature and Humidity Control ★  
**50 Years**



When inquiring specify CP A4456—see handy form pages 2-3

## these ELECTRONIC stainless steel FINGERS

Step Up Production  
Reduce Waste and Loss

By Preventing

Overflow of tanks  
Draining of boilers  
Air binding of pumps  
Burning out boiler  
tubes  
Burning processing  
pots  
Water contamination

## Faratron Liquid Level Controls

Just two polished stainless steel rods — that's all — in the vat, tank, boiler, processing kettle, freezer, pasteurizer, etc., to control signals or operate pumps or valves; they are constantly on duty — need no servicing — and are easy to install.

If you have any liquids — hot or cold — in any type of container — to control, you should have our Bulletin 458. Write for it today.

Lumenite Electronic Company

407 S. Dearborn Street Chicago 5, Ill.

When inquiring specify CP A4457—see handy form pages 2-3

## Instruments

### Instrument Shows Temperature and Operation Records

Designed for portable field service



"Tempscribe Recorder"

electrical device such as motors, fans, pumps etc., and as a temperature recorder in food and chemical processing plants.

**Features** — Easy chart replacement — because pen and bi-metallic temperature element of temperature recorder, and actuating mechanism of operation recorder, are in door. As shown in the illustration, when door is opened, pen swings out of the way, permitting clear, unobstructed view of complete record, and easy chart replacement without danger of damaging pen mechanism. The 4" charts are self-centering. Complete interchangeability, since the recorder can be converted to any temperature range, or used as an operation recorder, by changing the door of the instrument. Door removal simply requires lifting out the locking pin from the piano-type hinge. The clock movement is in the body of the instrument.

**Description** — Recorders are designed so that they can be hung flush against a wall or panel, suspended by the ring hook, or simply set in desired place. The bi-metallic temperature element of the temperature recorders is located in the front of the door to assure maximum sensitivity to quick temperature changes. The operation recorder can be hooked into the power line, or connected in parallel with the load. Charts obtained with the temperature recorder show highest and lowest temperature during test period, duration of any temperature extreme, and spread and frequency of temperature variation. Charts obtained with the operation recorder show starting and stopping time of the motor, intervals of cycling, and record of running time. This record indicates capacity of system utilized during test period. Recordings are made automatically. The instrument fits into a space  $4\frac{1}{2}" \times 5\frac{1}{2}" \times 7\frac{1}{2}"$ . A recess in the back of the recorder holds extra charts and ink bottle with glass dropper. The temperature recorder is available in the following standard time-temperature ranges: 24 hours,  $-10$  to  $+50^\circ\text{F}$ ; 24 hours, 30 to  $60^\circ\text{F}$ ; 24 hours, 40 to  $100^\circ\text{F}$ ; 24 hours, 70 to  $130^\circ\text{F}$ ; 24 hours, 60 to  $90^\circ\text{F}$ ; 8 hours, 60 to  $90^\circ\text{F}$ . Two types of operation recorders are standard: Type D with 24 hour movement, and Type C with 8 hour movement. Details are given in Bulletin 704.

BACHARACH INDUSTRIAL INSTRUMENT CO.,  
Dept. CP, 7000 Bennett St., Pittsburgh 8, Pa.

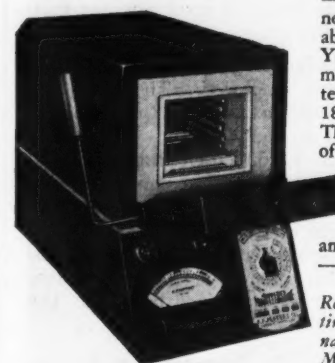
When inquiring specify CP A4458—see handy form pages 2-3

For the first time . . .

## PRECISION LABORATORY FURNACE

### CONTROL!

HUPPERT  
MODEL 22  
DeLuxe



Huppert has applied Automatic Precision Control to the Model 22 DeLuxe Laboratory Furnace—the equal of which has never before been available in a small furnace. You can set and automatically maintain any temperature from  $325^\circ$  to  $1800^\circ\text{F}$ , on the line. The rugged construction of this furnace is equal to years of hard service and maximum abuse. Complete with pyrometer and automatic control —\$100.

Request literature on entire line of Huppert Furnaces, including floor Models.

Standard Model 22 is still available.

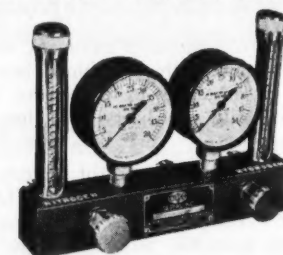
**K. H. Huppert Co.**

6822 Cottage Grove Ave.

CHICAGO 37, ILLINOIS

When inquiring specify CP A4459—see handy form pages 2-3

## AIRCO GAS PROPORTIONER



### CONVENIENT . . . ACCURATE GAS MIXING DEVICE

Designed to meet the needs of chemical laboratories using non-corrosive and non-explosive gas mixtures for testing or manufacturing purposes, this new Airco development produces an accurately proportioned gas mixture at a pressure not in excess of 5 psi. For example, it is available with a complete line of flow-meters to permit flows of hydrogen from about 2 to 200 cfh, and of nitrogen from about 6 to 140 cfh. For full details, write today for descriptive folder (ADI-892). Address:

## AIR REDUCTION

60 East 42nd Street  
New York 17, N. Y.



Offices in all  
Principal Cities

In Texas: Magnolia Airco Gas Products Co.

Represented internationally by Airco Export Corporation  
When inquiring specify CP A4460—see handy form pages 2-3

CHEMICAL PREVIEW



## Five Position Cam Lever Switch

Simplifies assembly and wiring

**Uses** — This 5 position cam lever switch is designed especially for ease in assembly and wiring. For use in the electronic and communications fields where it is important that only the desired circuit of several is closed.

**Features** — The two features which provide this are, single hold mounting of the switch frame to the panel and single bolt assembly of the contact block to the switch frame. The single bolt assembly permits soldering of the wiring to the contacts wherever convenient.

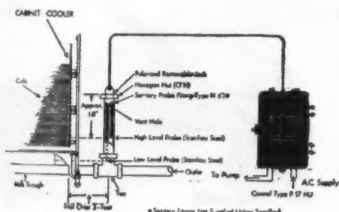
**Description** — Switch is locking or non-locking in all positions except the center position, which is always locking. Straight line motion is employed in switching from the center to all switching positions. This, plus positive roller action is said to result in maximum ease of operation. The fine silver contacts are riveted to nickel-plated phosphor bronze contact springs. Contacts are rated at 10 amperes, 125 volts AC (non-inductive load). Detailed information is contained in Catalog No. 200.

GENERAL CONTROL CO., Dept. CP, 1200 Soldiers Field Road, Boston 34, Mass.

When inquiring specify CP A4461 — see handy form pages 2-3

Electronic Sanitary Level Control  
For All Sanitary Liquids

Contains no vacuum tubes and operates with low voltage in the probe circuit



**Uses** — For service in various types of processing plants in electronic control of levels of all liquids. For many sanitary installations: general purpose pumps, pasteurizers, tanks, heaters, vat coolers, freezers, carbonated beverage dispensers, beer handling equipment, sterilizers and similar equipment. Contact with the sanitary liquid is made only by a stainless steel probe rod — no floats or other moving parts are required in the tank. Accuracy is maintained regardless of temperature or pressure.

**Description** — Steel probe rods are suspended into the tank from sanitary probe fittings. When the level of the liquid in the tank falls below the lower probe, the level control closes the circuit controlling the pump and the tank fills. When the liquid rises to the level of the upper probe, the circuit controlling the pump opens and the pumping operation stops. For pumping out control the operation is reversed. Supply: 115 or 230 volts, 60 cycles A.C. Power consumption, 1/2 watts. Output: single pole double throw relay. Contacts: 300 watts at 115 to 230 volts A.C. Probe circuit: will carry a resistance as high as 3500 ohms. Further information on Sanitary Level Control Series P17 on request.

**PHOTOSWITCH INC.**, Dept. CP, 77 Broadway, Cambridge 42, Mass.

When inquiring specify CP A4462 — see handy form pages 2-3

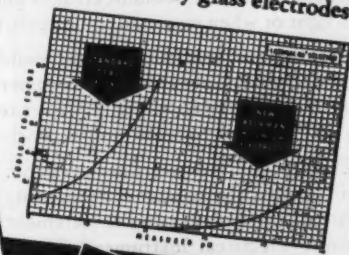
MAY - JUNE, 1946

## Check your knowledge of pH

Do you know the answers to these important pH questions?

**Q.** There is only ONE make of modern pH equipment with which accurate pH measurements can be made in highly alkaline solutions, even in the presence of sodium ions. Do you know what that make is?

**A.** Beckman pH equipment—and only Beckman equipment! Note in chart the accuracy of Beckman Type E Glass Electrode in highly alkaline solutions compared with ordinary glass electrodes!



**Q.** There is only ONE make of pH equipment with which glass electrode pH measurements can be made in boiling hot process solutions. Do you know the name of this equipment?

**A.** Again Beckman—and only Beckman! With Beckman High Temperature Glass Electrodes, continuous pH measurements can be made in solutions as hot as 100°C (212°F). This feature is highly important to consider in the purchase of pH equipment for any purpose. Even though your present operations may not involve hot solutions, you never know when changes or additions to your operations may obsolete equipment not providing this feature. Buy Beckman to begin with and be sure!

There's a Beckman pH instrument for your requirement



Beckman Automatic pH Indicator

The most advanced pH instrument available for large-scale pH control. Indicates pH completely automatically. Also operates pH recording and control equipment!



Beckman Industrial pH Meter

Combines high accuracy with knockabout ruggedness for portable plant and field use. Gives instant pH readings at the touch of a button. Also continuous indication!



Beckman Laboratory pH Meter

Combines high precision with wide versatility to meet every laboratory and research need.

Free! "What Every Executive Should Know About pH"—a helpful factual guide to modern pH control. Send for your copy.



BECKMAN INSTRUMENTS NATIONAL TECHNICAL LABORATORIES  
South Pasadena 16, California

INSTRUMENTS CONTROL MODERN INDUSTRIES

When inquiring specify CP A4463 . . . see information request blank, pgs. 2-3



**Legible Accuracy**

**WESTONS... are easy to read even in difficult locations**

Not only are WESTON thermometers inherently accurate over the entire scale, but their gauge-type dials with bold figures and divisions can be read easily... without error or guesswork... even in dim light or when mounted in difficult-to-get-at locations.

Their all-metal construction, too, enables them to maintain their dependable accuracy over long periods, despite vibration or subjection to temporary over temperatures. There are no vital parts to break or leak, nothing under pressure.

WESTON thermometers are available in types, sizes and stem lengths for equipment mounting, as well as for all industrial and processing requirements. Ask for Bulletin. Weston Electrical Instrument Corporation, 610 Frelinghuysen Avenue, Newark 5, New Jersey.

**Weston All Metal THERMOMETERS**

When inquiring specify CP A4464 — see handy form pages 2-3

**ANY LENGTH YOU WANT TO SUIT YOUR REQUIREMENT**

**The "HAMMOND" Screw-Veyor**

... DOES AWAY WITH Old Fashioned "U" Shaped Boxes

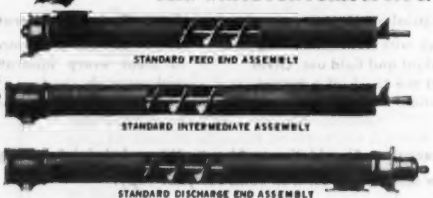
STREAMLINED TUBULAR CONSTRUCTION

ALWAYS IN POSITIVE ALIGNMENT

NO DISTORTION

DUST-TIGHT MOISTURE-PROOF  
INSURES SAFETY AND ELIMINATES FIRE HAZARD

... The most outstanding improvement in conveyors in a decade. Each screw length is suspended in patented bearings, removing all structural load from the casing. Runs as smooth as a machine... Rigid—Flexible—Accessible. WRITE FOR FORM M-600-2.



This discharge end assembly combined with any number of intermediate assemblies and a feed end assembly forms a complete conveyor system to suit any condition.

**Screw Conveyor Corporation**  
605 HOFFMAN ST. HAMMOND, IND.  
ENGINEERS MANUFACTURERS  
PRODUCTS U.S. PAT. OFFICE

When inquiring specify CP A4465 — see handy form pages 2-3

## Instruments

### Timer Has Luminous Dial

*Electronic unit operates with split-second precision*

**Uses** — Designed for applications requiring accuracy of timing operations, this timer has many uses in the control of processing and production equipment.

**Features** — A variable (stepless) rheostat assures precision operation which permits exact setting of any timing interval from 0 to 60 seconds. Dial calibrations are spread from 0 to 1 second to allow greater accuracy below 1 second. Luminous dial, plainly readable in the dark, allows freedom from light. The simple regulator adjustment permits the operator to insure close timing under all variations of line voltage.

**Description** — Operation is fully automatic — when time interval is set, starting button begins operation and cycle is completed without further attention. Cycle may be repeated continuously. A touch of the dial indicator will stop, change or extend the time interval at any point in the cycle. Push button switch permits manual control when desired. The timer is of all metal construction, arranged for table, shelf or hang-up use. It is fully electronic which employs a single thyratron tube. Operates on wattages up to 500 on standard 110 V. circuits. Available in AC-DC models.

ASSEMBLY PRODUCTS, INC., Dept. CP, Chagrin Falls, Ohio.

When inquiring specify CP A4466 — see handy form pages 2-3

★

### Dew Point . . . Relative Humidity Determinations Made Quickly

*Reduces errors due to human element*



Precision dew point indicator

work; controlled furnace atmospheres, chemical industry, petroleum industry, paper making and the production of compressed gases.

**Features** — Indication takes place in an enclosed observation chamber under conditions which can be controlled and reproduced. Condensation takes place suspended in the air or gas sample and the end point or vanishing point may be accurately observed, reducing errors due to human element, and permitting consistent determinations by two or more observers. Instrument requires no external coolant and is readily portable.

**Description** — A sample is drawn into the dew point indicator, from the surrounding air or any enclosed space or from a tank or gas cylinder. This unit can measure the dew point of high pressure gases through a pressure reducing valve. The gas sample is held in the observa-

**Uses** — Rapid determination of dew point, relative humidity, grains of moisture per pound and latent heat of any non-corrosive gas is possible with this dew point indicator. It has many uses in air conditioning and refrigeration

**HEAT RECOVERY IS faster**

**FEATURES—BODY:** Rugged, compact, 3" insulation. **HEATING SYSTEM:** Cross flow forced draft; gas, electric. **CONTROLS:** Thermostatic,  $\pm 1^\circ\text{C}$ . sensitivity; 3-heat switch. **HEAT RANGE:**  $35^\circ$  to  $260^\circ\text{C}$ . **SIZES:** (inside)  $13" \times 13" \times 13"$  to  $37" \times 25" \times 37"$ .  
WRITE for Bulletin 105

DESPATCH V-15 Oven

### in a DESPATCH LABORATORY OVEN

You'll get fast, accurate heat recovery — in 2 to 8 minutes after loading — in a DESPATCH Laboratory Oven. Allows more tests per day... provides needed data faster... helps ease your lab routine.

SEE YOUR LOCAL DEALER OR WRITE DIRECT

**DESPATCH**  
OVEN COMPANY MINNEAPOLIS 14  
CHICAGO 1

When inquiring specify CP A4467 — see handy form pages 2-3

### Refillable Draftsman's Pencil

**Has Unique Clutch to protect leads from breakage**



Instead of the usual metal tubular grip which scores leads and causes breakage, this new Bruning Draftsman's Refillable Pencil No. 3583 has a new type clutch which holds the lead firmly in a non-slip rubber grip. There is no nicking or scoring to weaken leads when clutch is tightened. This pencil holds leads from .079" to .070" including degrees HB to 9H of any popular drafting type lead. Long barrel permits use of full-length leads. Adjustable cap of pencil turns to show exact grade of lead used by owner. Other features include light weight — proper balance — "finger comfort" knurled grip. Professional in appearance — unquestionably a precision tool — this new pencil sells for only \$1.00. For full information, write Charles Bruning Company, Inc., 4706-12 Montrose Avenue, Chicago 41, Illinois.

**BRUNING Since 1897**

When inquiring specify CP A4468 — see handy form pages 2-3



tion chamber, at a pressure above atmosphere produced by a small hand pump. A pressure ratio gauge indicates relation between pressure of the gas sample and atmospheric pressure. Temperature is indicated by a mercury thermometer. The gas sample is allowed to stand for a moment to stabilize temperature in the observation chamber. Depressing the operating valve produces a visible condensation suspended in the air or gas in the lighted observation chamber. This fog is easily seen, for a lens system provides a beam of light in the observation chamber, concentrating the indication. This procedure is repeated to find the end point or vanishing point of the fog of condensation. The temperature of the dew point of the air or gas sample is read from a chart based upon initial temperature and pressure ratio. Relative humidity, latent heat, and grains moisture per lb., can be obtained from reference charts once the dew point is known. Unit is available in two ranges, one for dew points between  $-20^{\circ}$  F. and room temperature, the second for dew points from  $-100^{\circ}$  F. to 0 degrees F. Suitable for 110 V. AC or battery power.

ILLINOIS TESTING LABORATORIES, INC., Dept. CP, 420 N. LaSalle, Chicago 10, Ill.

When inquiring specify CP A4469 — see handy form pages 2-3

## C-R Tube Has High Light Output and Deflection Sensitivity

*Operates under strong ambient light conditions*



Comparative sizes of small C-R tube and older type

**Uses** — Model 3 JP cathode ray tube is designed for oscillographic and other applications requiring a small, short tube with high light output and deflection sensitivity.

**Features** — This unit combines the qualities of the

DuMont types 3 BP and 3 FP. It is suitable for equipment which must be operated under extremely strong ambient light conditions. The focusing electrode current under operating conditions is negligible, thereby simplifying bleeder design. The 2" neck and diheptal base provide adequate insulation between electrode leads for high altitude installation.

**Description** — For applications where deflection voltages are under suitable control the 3 JP model is directly interchangeable with the 3 FP. Equipment using the 3 BP may be readily adapted to use the 3 JP by connecting the intensifier electrode of the 3 JP either to the second anode potential or to a higher potential than the second anode. Due to the higher deflection sensitivity of the new 3 JP, it can be utilized with intensifier potential equal to twice the second anode potential, without reduction in sensitivity as compared with the 3 BP operating with the same second anode potential. Engineering specifications of the model 3 JP may be had on request.

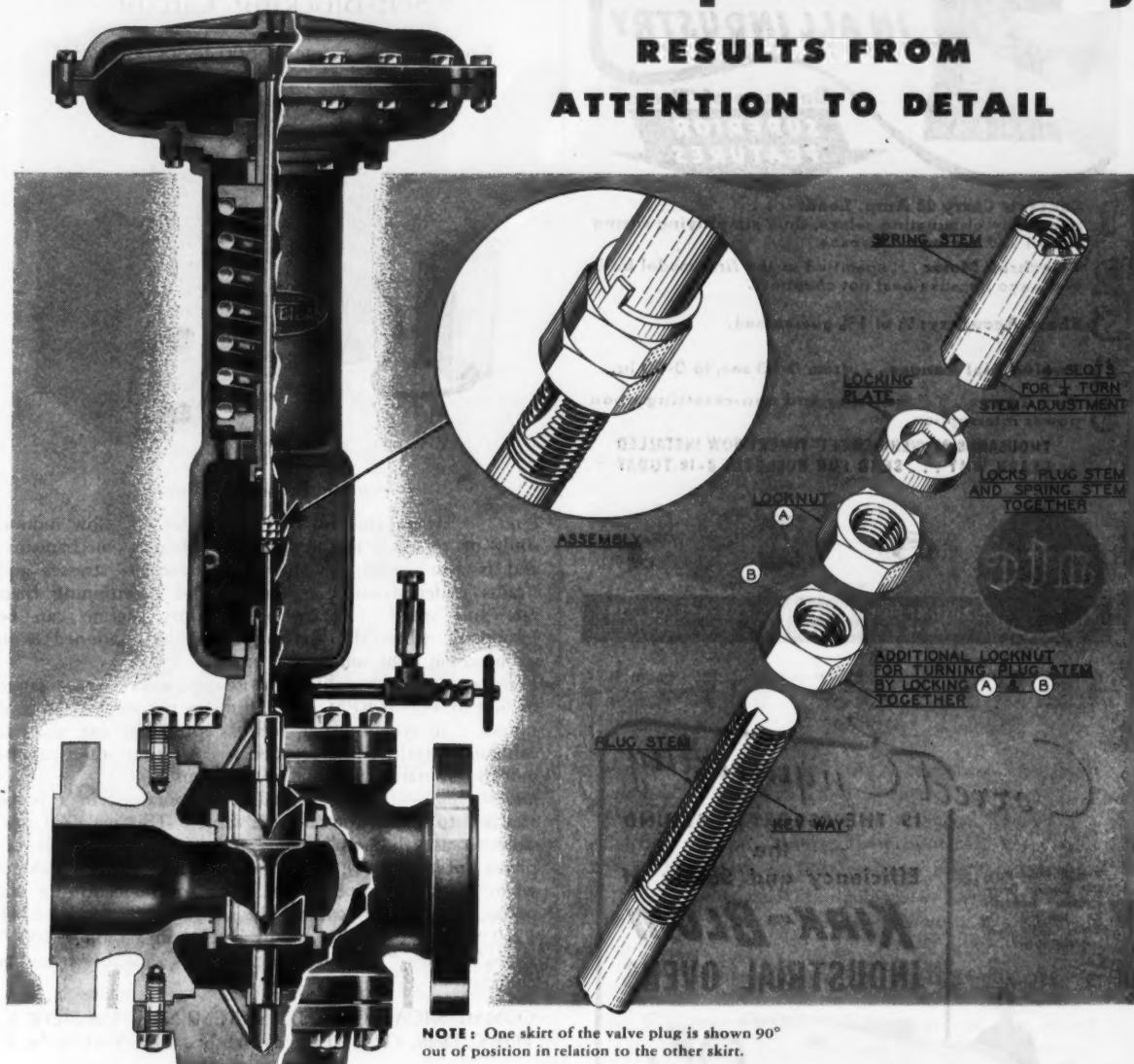
ALLEN B. DuMONT LABORATORIES, INC., Dept. CP, 2 Main Ave., Passaic, N. J.

When inquiring specify CP A4470 — see handy form pages 2-3

MAY - JUNE, 1946

# Control Valve Dependability

**RESULTS FROM  
ATTENTION TO DETAIL**



**NOTE:** One skirt of the valve plug is shown  $90^{\circ}$  out of position in relation to the other skirt.

## New Mason-Neilan Design Provides Positive Lock Between Plug Stem and Spring Stem

Under conditions of high fluid velocities, a valve plug may tend to rotate or spin. This condition is not detrimental if the mechanical construction is sufficiently rugged to counteract the torque generated. In other words the plug, plug stem, spring stem and diaphragm button must be locked together as a unit.

In the conventional plug-spring stem assembly, the plug stem locknuts are the only non-positive fastener. Locknuts can be a source of trouble on large valves because their holding power depends on mechanical tightness.

With the Plug-Spring Stem Key Lock, standard on all valves sized 4" and above, the torsional strain is entirely removed from the locknuts and placed on the two lugs of the locking plate. This is accomplished by means of four slots milled in the end of the spring stem which receive two equally spaced lugs on the locking plate. The locknuts simply hold the locking plate in position. A keyway in the plug stem engages one lug on the locking plate and completes the lock. The four mating slots in the spring stem provide for the adjustment of the plug position by quarter turns of the plug stem.

By actual test, this new Mason-Neilan assembly withstands torsional stress to the point of stem failure. The resistance is three to four times that of tightly set locknuts in the locking direction, and many times the resistance in the counter-clockwise direction.

MASON-NEILAN REGULATOR COMPANY, 1187 ADAMS STREET, BOSTON 24, MASSACHUSETTS

New York • Philadelphia • Pittsburgh • Cleveland  
Chicago • Tulsa • Atlanta • St. Louis



Houston • Los Angeles • San Francisco  
Mason Regulator Co. of Canada, Ltd., Montreal, Canada

When inquiring specify CP A4471 . . . see information request blank, pgs. 2-3



- 1 Contacts Carry 25 Amp. Loads . . . frequently eliminating relays, thus simplifying wiring circuit and saving vital space.
- 2 Telechron Motor . . . specified in the first model built years ago because *best not cheapest*.
- 3 Sharp Accuracy:  $\frac{1}{2}$  of 1% guaranteed.
- 4 Twelve Dial Ranges . . . from 0-15 sec. to 0-60 hrs.
- 5 Two Types . . . resetting and non-resetting upon power interruption.

THOUSANDS OF "VERNIER-SET" TIMERS NOW INSTALLED  
LEARN WHY . . . SEND FOR BULLETIN B-10 TODAY



When inquiring specify CP A4472 — see handy form pages 2-3



● Performance records established by Kirk & Blum Industrial Ovens offer convincing evidence of the experience and knowledge which go into the construction of engineered drying and baking equipment.

You'll find it decidedly to your advantage to find out how the services of Kirk & Blum Air Engineers can help you with your particular problem. The Kirk & Blum Manufacturing Co., 2833 Spring Grove Ave., Cincinnati 25, Ohio.

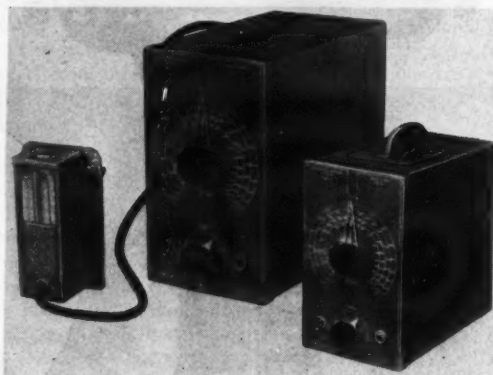
**KIRK & BLUM** SPECIALISTS IN INDUSTRIAL OVENS

When inquiring specify CP A4473 — see handy form pages 2-3

## Instruments

### Portable Stroboscope Employs Self-Blocking Circuit

Covers speed range of 600 to 48,000 RPM



Portable stroboscope assembly

**Uses** — Here's an aid to industry for the slow motion study of rotating, reciprocating or vibratory mechanisms; and is also useful for studying mechanical stresses and strains under dynamic conditions and determining their rate and speed. Rotary or vibratory motion can be "stopped" when the moving object is examined with stroboscopic light source.

**Features** — The portable stroboscope covers a speed range of 600 to 48,000 RPM (10-800 cycles per second) in four ranges. A synchronized reed is provided for accurate calibration against line frequency. All four scales can be quickly calibrated within plus or minus 3%.

**Description** — The light source is contained in a probe attached to a four-foot flexible cable. This makes it possible to use the stroboscopic light in "hard to get at" places. Light probe and cable are housed in a cabinet when the stroboscope is not in use. The handle of the probe is then used to carry the instrument. Model CML 1210 weighs 19½ lbs. and is housed in a cabinet 10½" x 5¾" x 10½". More information is available from the company.

COMMUNICATION MEASUREMENTS LABORATORY, Dept. CP, 120 Greenwich St., New York 6, N. Y.

When inquiring specify CP A4474 — see handy form pages 2-3

★

### Thermal Watt-Demand Meter

Designed for increased accuracy

**Uses** — "Direct heat" principle is employed in a thermal watt-demand meter and a true single-phase, kva demand meter.

**Features** — Temperature-sensitive, bi-metallic spirals act as their own heaters, thus increasing life and accuracy of the meter and minimizing the need for maintenance. Since there is no loss of efficiency in the transmittal of heat, the "direct heat" construction results in inherently greater operating torques, thus allowing the use of larger parts and insuring initial and sustained accuracy.

**Description** — The temperature-sensitive elements are attached directly to a shaft and gear. As the electric energy flows through the thermal element, the heat produced



EQUIP IT TO  
"GROW GRACEFULLY"  
ON KEWAUNEE'S  
"UNIT ASSEMBLY PLAN"

*Experiment*  
**in YOUR LABORATORY NOT with IT!**

Take the "experiment" out of laboratory planning by installing Kewaunee Laboratory Furniture, Cabinets and Casework. Simply select the units you need—all match exactly and are interchangeable, permitting your laboratory to "grow gracefully." Made of finest materials . . . all working surfaces of KemROCK for resistance to acids, alkalies, abrasion and shock. Modernize efficiently—the Kewaunee way. For details—

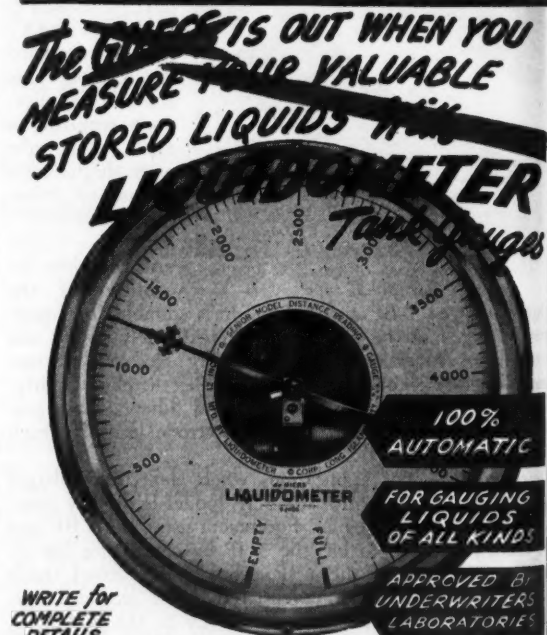
WRITE: INDUSTRIAL DIVISION

*Kewaunee Mfg. Co.*

C. G. Campbell, President

3011 S. Center St., Adrian, Mich. • Representatives in Principal Cities

When inquiring specify CP A4475 — see handy form pages 2-3



WRITE for  
COMPLETE  
DETAILS

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

THE **LIQUIDOMETER** CORP  
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring specify CP A4476 — see handy form pages 2-3

CHEMICAL PREVIEW



## Instruments

causes the spiral to deflect, thus rotating the shaft and gear, which drives a red pusher pointer. Maximum demand is indicated by a black pointer, which is pushed up-scale by the red pointer. The meter is housed in a glass case, coated on the inside except for the circular front opening, to promote uniform heat distribution within the meter and to aid in reducing negligible effects of variable external temperatures. It is provided with a manually-operated reset device, by which the black pointer can be turned down to contact the red pointer. The scale, designed to give maximum legibility and ease of reading, conforms to the latest standards approved by the joint committee of E.E.I. and A.E.I.C. Detailed information is contained in bulletin GEA-4541 and is available on request.

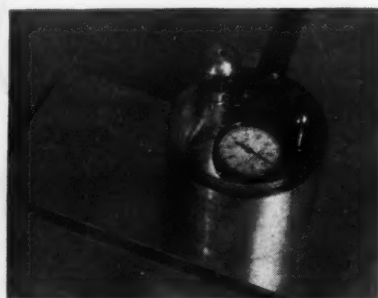
GENERAL ELECTRIC CO., Dept. CP, Schenectady 5, N. Y.

When inquiring specify CP A4477 — see handy form pages 2-3

★

### Thickness Gauge Detects Faulty Bond in Laminates

*Useful for measuring thickness of large sheet areas*



**Uses —** Measurement of thickness of sheet metal stock, in the metals industry and thickness measurements in the plastics and plywood industries is accomplished with this gauge. The device also may

be used for inspection of the bonds between the laminar layers of laminated materials.

**Features —** The instrument may be so calibrated, for the materials being inspected particularly those of sandwich-type construction for the number and thickness of the layers, so that for a given material a specific reading can be readily interpreted as a faulty bond in a particular layer. The unit also can be calibrated to inspect single sheet thicknesses, especially with large sheets where the measuring of central areas is not possible with micrometers. In thickness measurement of sheet metal, the pressures recorded are checked against pre-determined gauge readings for each metal thickness.

**Description —** Operating on the pressure principle, the gauge consists of an inverted cup-shaped shell with a top wall of transparent material and the bottom rim edged with a rubber gasket. Mounted inside the shell is a dial indicator equipped with a stem reaching to a spherically shaped foot, which, when the instrument is being used, rests against the sheet surface. A valve in the top of the case is connected to an exterior pump, so that the air inside may be withdrawn or the pressure reduced to any predetermined amount. The dial of the gauge measures in thousandths of an inch on an upward movement of the spherical foot.

THE GLENN L. MARTIN CO., Dept. CP, Baltimore 3, Md.

When inquiring specify CP A4478 — see handy form pages 2-3

MAY - JUNE, 1946

**THE LINDBERG BOX FURNACE**  
**USES 45% LESS ELECTRICITY**

**"Stepless" INPUT CONTROL!**

In addition to providing your laboratory and shop with reliable facilities for fast, accurate metallurgical tests, chemical analyses and many other jobs requiring temperatures up to 2000° F., the famous Lindberg Box Furnace with "Stepless" Input Control soon pays for itself in current saved.

During a recent test this furnace consumed only 60.3 kilowatts of current, maintaining a temperature of 1650° F. for seven days. Operating under the same conditions for a like period with the conventional rheostat required 110 KW of current. At Chicago rates this saving of 50 KWH per week would amount to \$72.80 in one year.

The "Stepless" Input Control, enclosed in a separate metal case with an Indicating Pyrometer, employs a synchronous motor to automatically make and break the current. This supplies just the right amount needed to maintain an EXACT temperature level. The need for a wasteful rheostat is entirely eliminated. The control can be mounted conveniently near furnace and power lines.

The heavy one-piece, rod-type nickel chromium

elements are simple and easy to replace as the use of nuts and bolts is eliminated. A built-in transformer for low voltage current materially prolongs element life. The door is of a modern counterbalanced, vertical-lift design that keeps the hot side away from the operator.

Along with remarkable savings in current consumption, installation and maintenance costs are also unusually low.

Your laboratory equipment dealer will be glad to supply you with complete information on this reliable Lindberg Box Furnace today. Also ask him about Lindberg Combustion Type and Pot Crucible Furnaces as well as Lindberg Laboratory Hot Plates.

**LINDBERG ENGINEERING COMPANY**  
2450 W. HUBBARD STREET • CHICAGO 12, ILLINOIS

**LINDBERG**

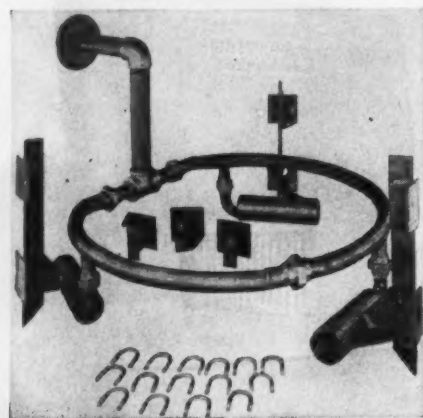
WELL KNOWN THROUGHOUT THE WORLD AS  
LEADERS IN DEVELOPING AND MANUFACTURING  
INDUSTRIAL HEAT TREATING EQUIPMENT



**SOLD EXCLUSIVELY THROUGH LABORATORY EQUIPMENT DEALERS**

When inquiring specify CP A4479 . . . see information request blank, pgs. 2-3

## ALLOY



### Stainless Fabrication

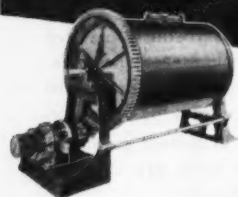
More than a quarter-century of fabrication experience with all grades of alloys, is available for special work.

Let us quote on your requirements, and ask for Bulletin CP 30.

**ALLOY Manufacturing Co., Inc.**  
30th and Brereton Ave., Pittsburgh 19, Pa.

When inquiring specify CP A4480 — see handy form pages 2-3

## Step Up Fine Grinding Mixing and Blending



with  
**ABBÉ**  
PEBBLE & BALL MILLS

For pulverizing or grinding wet or dry materials, you're sure to do the job right in an Abbe' porcelain-lined Pebble Mill or an alloy steel ball mill.

Abbe' Mills are made to your needs in operating capacities from 30- to 10,000-lbs. charge, combining grinding and dispersion in one operation. They may be jacketed for heating or cooling, and operated under pressure or vacuum.

Write for Catalog  
No. 55.

Abbe' Ball Mill with dust-proof housing for dry grinding.  
Above — Pebble Mill for wet grinding.



**ABBÉ ENGINEERING CO.**

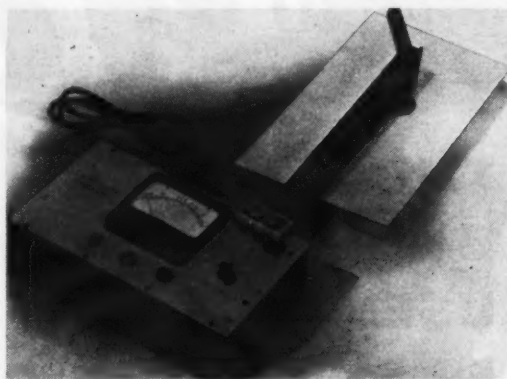
46 CHURCH STREET NEW YORK 7, N. Y.  
Mills • Mixers • Sifters for Any Process

When inquiring specify CP A4481 — see handy form pages 2-3

## Instruments

### Tester Makes 3 Moisture Determinations per Minute

Sheet material analyzed for range of 3 to 15% moisture



Portable Moisture Detector

**Uses** — Determination of moisture of sheet materials, up to  $\frac{3}{8}$ " thickness, such as paper, cardboard, veneer and other products is possible with this moisture detector.

**Features** — Makes quick determinations of moisture content within a range of 3 to 15% depending on material being tested. Three complete tests can be made in one minute.

**Description** — An electronic principle is employed in the meter. Sample sheet to be tested is clamped between two electrodes which develop an impulse that is transmitted to the meter. Meter scale is calibrated in electrical units which are easily translated into moisture content readings by testing several samples of similar material whose moisture contents have been previously determined by the usual standard oven method. The unit operates on 110V. 60 cycle A.C., is portable, weighing less than 10 lbs.

COLLOID EQUIPMENT CO., INC., Dept. CP, 50 Church St., New York 7, N. Y.

When inquiring specify CP A4482 — see handy form pages 2-3

★

### Meter Determines Smoke Density in Stack Gas

Uses photoelectric comparator principle

**Uses** — Based on the principle that a pyrex glass rod will collect a deposit of soot, when placed in the stream of flue gas containing oil smoke, this soot density comparator has wide usage.

**Features** — Instrument measures amount of smoke deposit in terms of the extent to which it will interfere with the passage of a beam of light through the glass rod onto a photoelectric cell.

**Description** — In the meter is mounted a light source in the form of a 15-watt lamp and photoelectric cell connected to an electric microammeter. There is provided a light tube for supporting the pyrex glass rod between the lamp and the photoelectric cell. A constant voltage transformer is provided for maintaining 110V. on the lamp. Two adjusting knobs are provided in the electric meter circuit.

In operation the smoke meter is adjusted for "zero" reading with a dull black rod in the light tube. Then

## TEMCO ELECTRIC FURNACE

MODEL GRP

FOR HEAT TREATING  
SMALL TOOLS AND  
PARTS, TESTING AND  
LABORATORY WORK.

**FAST HEATING**—1500° F. in 30 min. Temperature controlled by four point switch set for 500°, 1000°, 1500° and 1850° F.

These settings easily changed by adjusting bands on rheostat coils. Dependable indicating pyrometer is calibrated in both Fahrenheit and Centigrade scales.

**UNIFORM TEMPERATURE**—Heating element of highest quality nickel-chromium alloy forms a continuous coil and is embedded in sides, top and bottom of muffle chamber. This construction assures uniform temperature and protects element from damage and oxidation. Complete muffle unit is replaceable.

**PORTABLE**—Body is aluminum. Total weight, 17 lbs. Muffle chamber, 4" x 3 $\frac{3}{4}$ " x 3 $\frac{3}{4}$ "; furnace overall, 9 $\frac{1}{4}$ " x 13 $\frac{1}{2}$ " x 10 $\frac{1}{2}$ ". Supplied with attachment cord. Operates on A.C. and D.C., 115 or 230 V. (be sure to specify voltage). Max. power consumption 1200 watts. Model GRP complete, 115 V. ....\$42.50; 230 V. ....\$47.50  
See your supply house or write

THERMO ELECTRIC MFG. CO., 476 W. Locust St., Dubuque, Ia.

When inquiring specify CP A4483 — see handy form pages 2-3



These are the original electric liquid level controls, pioneered by us in 1933. They have no floats — no vacuum tubes — no moving parts in the liquid. They control variations of levels of  $\frac{1}{4}$ " or more, and are not affected by pressures, temperatures, acids or caustics. Relay can be located any distance from the electrode. Special ice free electrodes where necessary.

WRITE FOR CATALOG

New CATALOG 145-A contains complete technical descriptions of the many types available, together with wiring diagrams for various installations. Get full information on B/W controls. WRITE FOR YOUR COPY TODAY!

## B/W CONTROLLER CORPORATION

2204 E. Maple Road, Birmingham, Mich.

When inquiring specify CP A4484 — see handy form pages 2-3

CHEMICAL PREVIEW



MEASURES ANYTHING (not containing abrasive solids) THAT CAN BE HANDLED THROUGH A PIPE

## FLUIDOMETER

*Automatic Metering System*

● The Fluidometer System is equally accurate on liquids of high or low viscosity, and is adaptable to practically every liquid measuring problem in industry, whether it involves pounds, gallons, barrels or tank car lots. Operation is simple. When the starting button is pushed Fluidometer automatically delivers the predetermined quantity—then automatically resets for the next delivery. If desired, the push button can be eliminated and the system actuated by a timing device.

Write for Bulletin F-42

HETHERINGTON & BERNER INC.  
711 Kentucky Avenue, Indianapolis 7



When inquiring specify CP A4485 — see handy form pages 2-3

## Instruments

the meter is adjusted for "100" reading with a clean pyrex glass rod in the light tube. After the pyrex rod has been exposed to the flue gases it is replaced in the light tube and the meter will give a reading indicating the percent light transmitted. Meter is housed in a metal case 5 1/2" x 5 1/2" x 6 1/2". More information is available from the manufacturer.

THE REFINERY SUPPLY CO., Dept. CP, 621 E. Fourth St., Tulsa, Okla.

When inquiring specify CP A4487 — see handy form pages 2-3

★

## Guide to Better Process Control

*pH equipment indicates, records and controls many processes*

**Uses** — Numerous applications of pH equipment have been made in water conditioning, in the chemical, metals, rubber, plastics, paper, food and by-products and textile field.

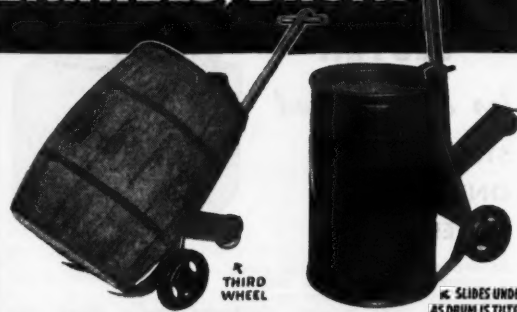
**Features** — pH indication, recording or controlling supervises process operations either manually or automatically. It has a definite effect on quality, uniformity and cost. In many of the process industries some operations cannot be carried on without pH control. In others pH control minimizes corrosion, decreases maintenance costs and eliminates the possibility of contamination of water supplies from plant waste disposal.

**Description** — pH is measured by the electrometric method in which the potential developed by the hydrogen-ion concentration in an electrolyte is measured by a glass electrode cell. The Beckman electrode cell consists of a saturated calomel electrode, a rugged glass electrode and a resistance thermometer element. Calomel electrode has a constant potential which is not affected by changes in hydrogen-ion concentration. This is the reference electrode. The glass electrode becomes the measuring electrode and is a conductor in the application of measuring pH. Resistance thermometer element measures the temperature of the solution in which the glass and calomel electrodes are immersed and adjusts the EMF-pH relationship of the measurement in accordance with the temperature coefficient of the electrodes. This feature automatically provides a temperature compensated record of pH values. Output from the electrode cell is amplified sufficiently to operate a potentiometer-type indicator or recording instrument. pH value is read directly on a chart having linear graduations. Complete system includes the electrode, an amplifier unit and the indicator or recorder. Two types of electrode assemblies are used; one an immersion type and the other an enclosed flow type. They may be safely used in viscous or even semi-solid substances and in rapidly circulating or flowing liquids. pH determinations may be made in nearly all aqueous solutions regardless of color, viscosity, or suspended solids and in the presence of oxidizing or reducing agents. Electrode assemblies are available for a number of temperature range applications. Continuous automatic control of pH is available for either air or electric operation. Diagrams, charts, photographs and typical layouts in bulletin pH 1302 show complete data. Among the typical layouts are: control of pH in the manufacture of synthetic rubber, automatic control of pH cane juice liming and others.

THE BRISTOL CO., Dept. CP, Waterbury 91, Conn.

When inquiring specify CP A4488 — see handy form pages 2-3

## SABIN ONE-MAN TRUCK for BARRELS, DRUMS



**INSURES FASTER, SAFER AND Cheaper HANDLING**

Gone are the days when it took two or more men to handle a heavily loaded barrel or drum! NOW, weights up to 800 lbs. are easily handled by ONE small man with this Sabin Truck. Exclusive Third Wheel Feature is an added advantage—makes for better balance, added safety and greater convenience.

Write for  
**FREE**  
Bulletin  
No. 45

THE SABIN MACHINE CO.

6534 Carnegie Ave.

Cleveland 3, Ohio

**ALSO TOTE PAN, BOX, CARBOY, KEG TRUCKS!**

When inquiring specify CP A4486 — see handy form pages 2-3

MAY - JUNE, 1946



# Alnor PYROCON

**the contact  
pyrometer  
for surface temperature  
readings . . .**

The Alnor Pyrocon gives you accurate temperature readings in a few seconds, of liquids, oils, plastic materials, or surfaces, whether flat or curved, stationary or moving. The Alnor Pyrocon movement is a rugged, shock resistant type and is used with any one of eleven types of thermocouples, interchangeable without adjustment or re-calibration. Either rigid or flexible arm, and choice of thermocouples allows meeting any individual needs. Built in several standard ranges, 0-400 deg. F. to 1200 deg. F. Write for descriptive bulletins.

**ILLINOIS TESTING LABORATORIES, INC.**  
420 NORTH LA SALLE STREET • CHICAGO 10, ILLINOIS

When inquiring specify CP A4489 — see handy form pages 2-3

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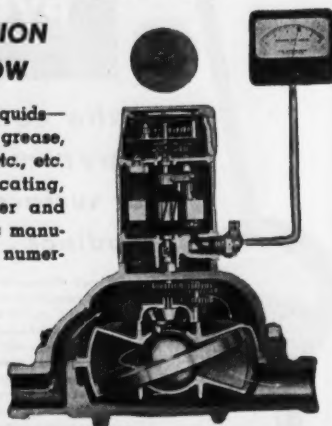
When inquiring specify CP A4490 — see handy form pages 2-3

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**REMOTE INDICATION**  
**OF RATE OF FLOW**

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paint, varnish, syrups, etc., etc.  
—for measuring, indicating,  
totalizing flow of water and  
chemicals in continuous manu-  
facturing processes and numer-  
ous other uses. Its  
remote indicating fea-  
ture is new—get the  
complete story.

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BULLETIN 46-766



**The HAYS CORPORATION**  
COMBUSTION  
INSTRUMENTS  
AND CONTROL  
MICHIGAN CITY, INDIANA, U.S.A.

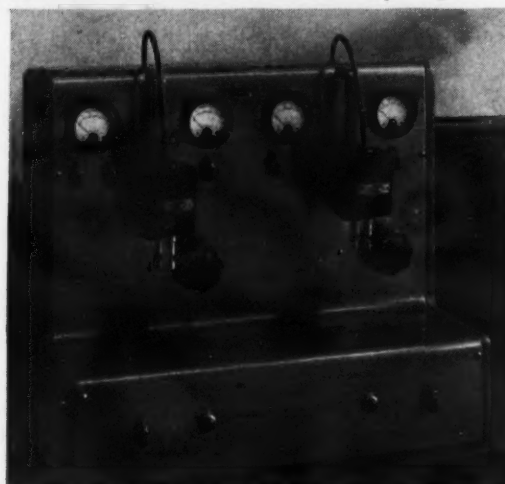
When inquiring specify CP A4491—see handy form pages 2-3

## Instruments

### Electrolytic Analyses Speeded Up

*Larger electrode surfaces increase rate of  
deposition*

**Uses** — Quantitative electrolytic analyses of ferrous and  
non-ferrous metals and alloys; metals in biological materi-  
als; metals in foods, soils, etc.; electroplating solutions



Sargent-Slomin Electrolytic Analyzer

and electro-deposits; forensic materials; and micro speci-  
mens are made with electrolytic analyses.

**Features** — Analyses are made quickly with less manipula-

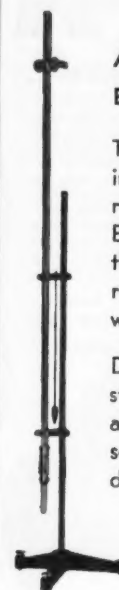
## PALO-TRAVIS

**PARTICLE SIZE APPARATUS  
OFFERS**

<b>Accuracy</b>	<b>Versatility</b>
<b>Ease of Manipulation</b>	<b>Rapidity</b>

The sedimentation principle on which this  
instrument operates, makes it possible to  
range, from 325 mesh down to 2 microns.  
Elaborate calculations are eliminated by  
the use of a graphical solution or a slide  
rule calculator, both of which are furnished  
with the instrument.

Determination may be made on any sub-  
stance, providing there is a liquid medium  
available in which the substance is in-  
soluble, and a wetting agent that will  
disperse the particles.

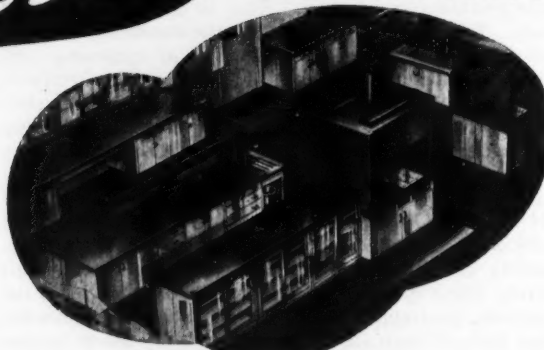


**PAIO-MYERS INC.**  
81 READE STREET, NEW YORK 7, N. Y.

When inquiring specify CP A4493—see handy form pages 2-3

# Sheldon

## LABORATORY EQUIPMENT



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SHELDON'S long, continuous, and successful experience;  
efficient planning service, and unsurpassed production  
facilities combine to provide the utmost in utility and  
economy in Laboratory Equipment. Let SHELDON Planning  
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**E. H. SHELDON & COMPANY**  
MUSKEGON, MICHIGAN

When inquiring specify CP A4492 . . . see information request blank, pgs. 2-3

## A MOISTURE TESTER

*for Every Need*

**STEINLITE  
ONE MINUTE  
TESTER**

An experienced operator can make  
a moisture test with the Steinlite  
in one minute; almost any operator  
in two or three minutes. Calibrated against official oven  
methods. Operator requires no technical training. Tests  
wide variety of products — dehydrated foods . . . dried eggs,  
nuts, cocoa, etc. Sold on 10-day free trial basis. No money  
down.

### OTHER TESTERS

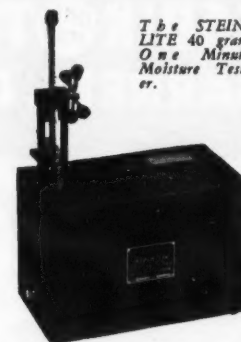
Brown-Duvel especially suited  
where the volume of sam-  
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for laboratory tests on all ma-  
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matic, the modern drying  
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LITE 40 gram  
One Minute  
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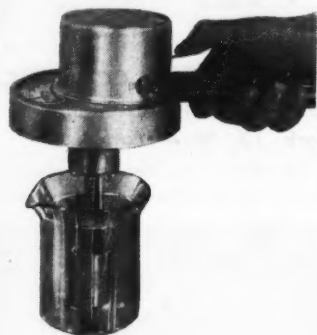


When inquiring specify CP A4494—see handy form pages 2-3

CHEMICAL PREVIEW



# TEST VISCOSITY in 30 Seconds with a Brookfield Synchro-Letric VISCOSIMETER



- ★ FAST
- ★ ACCURATE
- ★ SIMPLE
- ★ STURDY

Save valuable production time and get closer control by running viscosity tests right on the job. Variable speed units make it possible to measure materials of plastic flow at different rates of shear.

Send for bulletin giving complete information.

**BROOKFIELD**  
ENGINEERING LABORATORIES  
Box 603P  
Sharon, Massachusetts

When inquiring specify CP A4495  
— see handy form pages 2-3

## Instruments

tion. Larger surface areas on the corrugated electrodes place the greatest volume of electrolyte in contact; and more thorough agitation overcomes concentration polarization thus speeding the rate of deposition near the end point.

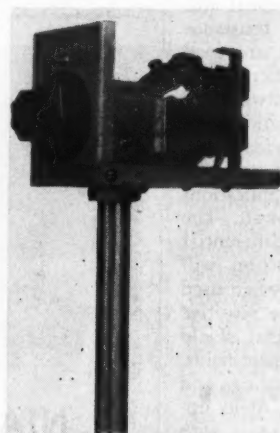
*Description* — Each complete unit is mounted within a case consisting of a one-piece stainless steel panel, beaker platform and apron. Analyzer units are designed to line up in bank or multiple assemblies. The central electrode is rotated by a synchronous capacitor type motor operating at 550 RPM. It is fully enclosed for maximum protection against corrosive fumes. Shaft, sleeve bearings and sealing caps are made of stainless steel. All models are self contained and operate directly from standard single phase circuits. Newly designed corrugated electrode systems greatly increase the rate of deposition. Used with the new analyzer units they produce smooth, close grained deposits at maximum current density.

E. H. SARGENT & CO., Dept. CP, 155-65 E. Superior St., Chicago, Ill.

When inquiring specify CP A4496 — see handy form pages 2-3

## Temperature Limit Switch Controls Multiple Circuits

*Has one lightweight moving part*



Temperature control switch

Uses — Suitable for wide applications of temperature control problems this temperature limit switch is available as a "one switch", "two switch" or "three switch" model. In the "three switch" design it is applied (a) where the load is divided into three parts; or (b) where one circuit is used for control, one as a high limit and one as a low limit; or (c) to give definite steps to a three position motor; or (d) to provide three speed control of a variable speed motor.

*Features* — Has corrosion and heat resisting tube — dial pointer for easy setting — locking screw locks temperature setting. Unit has one lightweight moving part.

*Description* — Model E-1 designates single switch — Model E-2, two switch — Model E-3, three switch. In the multiple switch models, each switch has a separate adjusting screw which permits setting of the differential at any desired point. The maximum differential between switches on these multiple units is 150° F. operating differential is plus or minus 1/4 to plus or minus 25. Units are equipped with sheet metal cover. Cast iron vapor tight base and cover with gasket also available. Approximate size 7 1/4" x 2 3/4" x 3 1/2".

BURLING INSTRUMENT CO., Dept. CP, 253 Springfield Ave., Newark, N. J.

When inquiring specify CP A4497 — see handy form pages 2-3

# JERGUSON

## Special Design GAGE with heating or cooling tube Reflex or Transparent



## Quick and Accurate Level Readings

- 1... of viscous liquids by keeping them more fluid by heating
- 2... of low-boiling point liquids by keeping them chilled

Here is just one of the numerous variations in JERGUSON Gages designed to give better service to refineries and other processing plants. If the liquid in the gage is sluggish or is likely to boil at the slightest provocation — release of pressure, for example — level readings are likely to be in error unless special precautions are taken. The above type JERGUSON Reflex Gage is designed for these conditions. Readings are accurate because the liquid is in a readable state.

Another special gage for refineries is our "vacuum-jacketed" type for use where the reading glass of a standard type might become frosted because of condensation. The vacuum prevents this. Both flat glass and low-pressure tubular glass gages are available in the frost-preventing type.

Why not bring your special gage problems to us?



## JERGUSON GAGE & VALVE CO.

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Memphis 3, Tenn.  
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Pittsburgh, Penna.  
Portland, Maine  
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Montreal 13, P. O. Canada  
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MFRS. OF GAGES, VALVES, DRAIN VALVES, THERMOMETER AND THERMOCOUPLE WELLS, SIGHT GLASSES

When inquiring specify CP A4498 — see handy form pages 2-3

## PREVIEW OF SURFACE WEARABILITY



**The TABER ABRASER** quickly reveals wear resistance in *advance*

"How long, under actual service conditions, will this or that surface hold up?" The Taber Abraser quickly answers this question. Time consuming performance tests are not necessary. In your own laboratory you can measure surface durability scientifically, obtaining a permanent wear value record for research or production control on paint, lacquer, plating, textiles, leather, rubber, metals and other materials. Used by hundreds of America's leading industries.



YOURS on request — Manual explaining fully the Taber Method and the reasons why it pays to pre-test. (Also included — brochure on stiffness and resilience testing with the Taber V-5 Stiffness Gauge.)

**TABER INSTRUMENT CORP.**  
111 Cl Goundry St., North Tonawanda, N.Y.

**The Taber Test Proves What Wears Best**

When inquiring specify CP A4499 — see handy form pages 2-3



This up-to-the-minute news-picture magazine shows how wide-awake management in many lines of business is utilizing palletized unit loads and fork trucks... to end the burden of costly manual methods and speed production.

### GOOD NEWS FOR HIGHWAY SHIPPERS

Mechanized handling made available to highway shippers by the new Clark Trucloder Method.

**Clark builds** GAS AND ELECTRIC POWERED FORK TRUCKS AND INDUSTRIAL TRACTORS

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**CLARK TRUCTRATOR**

Division of CLARK EQUIPMENT COMPANY  
BATTLE CREEK, MICHIGAN

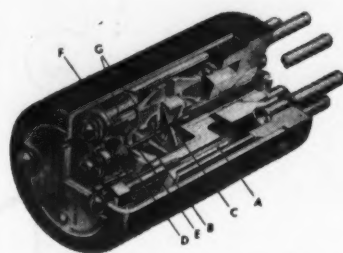
OTHER PLANTS: BUCHANAN, ACKTON, BERRIN, SPRING, MICHIGAN

When inquiring specify CP A4500 — see handy form pages 2-3

## Instruments

### Sensitive Magnetic Relay is Compact and Light Weight

*Operates on currents of photocell and thermocouple magnitudes*



Cutaway view of sensitive magnetic relay

**Uses** — Designed for use as a polarized relay in vacuum tube circuits in balanced circuits and in applications requiring pull in and drop out at the same current and voltage, this unit is suitable for industrial and electronic applications.

**Features** — Small size, light weight and dependable under vibration, this relay operates on currents of thermocouple and photocell magnitudes — thus helping to "shrink" mechanical design by eliminating intermediate amplification. The mechanism is sealed by a gasketed metal cover and may be operated in any position.

**Description** — The essential design of this sensitive magnetic relay is an inversion of the d'Arsonval galvanometer type movement in that the permanent magnet swings and the coils are stationary. This makes it practical to use bobbin-wound coils containing more wire than usual and thus gives wide latitude in the selection of resistance values to match associated circuits. Two coils are used so that the relay will operate on the difference between the currents in the two coils. The contacts will handle 1/3 ampere in a non-inductive load circuit; and provide either SPST or SPDT switching. Operating power is normally about 10 microwatts although for some circuit applications operation may be secured with less than 1 microwatt. The coils will safely dissipate 2 watts, allowing differential operation on large currents while the construction will withstand substantial overloads without damage when used as a simple relay. The magnetic system of the sensitive magnetic relay is enclosed in a permeable metal shield (A) which protects it from stray external magnetic fields. Rotor (B) is pivoted in spring loaded jewel bearings and has a small Alnico vane (C) at its lower end. At its upper end it has a hairspring (D), a balance cross with weights (E), and a platinum iridium contact arm (F). The magnet vane is positioned between two parallel stationary coils (G) whose magnetic fields are coincident. The aluminum cover is mounted on a standard small seven-pin radio tube base. The diameter of the unit is 1 1/4 inches; its seated height is 2 1/4"; and its weight is 0.15 pounds. The manufacturer's Publication No. 3004 gives further details and circuits.

THOMAS A. EDISON, INC., Dept. CP, Instrument Division, West Orange, N. J.

When inquiring specify CP A4501 — see handy form pages 2-3

### Notes for Electrical Instrument Users

A bi-monthly publication "Weston Engineering Notes" has been inaugurated by the engineering department of Weston. Its purpose is to provide application engineering

## SURFACE PYROMETERS FOR EVERY PURPOSE

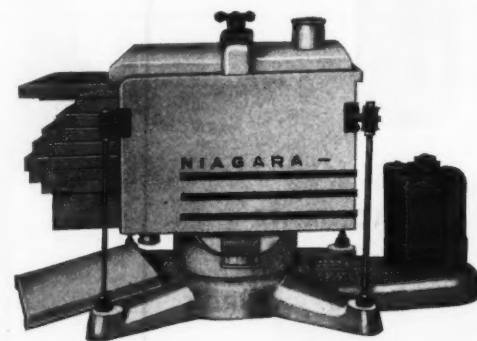
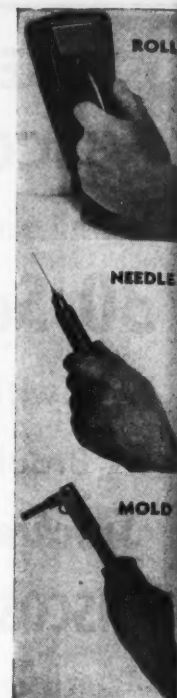
The correct temperature of roll surfaces, masses of plastic materials and of mold cavities is vitally important in many processing industries. The routine use of a dependable surface pyrometer takes the guess-work out of such temperature determination. The Cambridge Surface Pyrometer is the ideal shop instrument for all these applications. It is accurate, rugged, quick acting and easy to use. The Roll Model is for checking surface temperature of still or moving rolls. The Needle Model is for within-the-mass temperature and the Mold Model is for checking mold cavities.

Send for bulletin 194CP

**CAMBRIDGE**  
ROLL • NEEDLE • MOLD  
**PYROMETERS**

**CAMBRIDGE INSTRUMENT CO., INC.**  
3706 Grand Central Terminal  
New York 17, New York

When inquiring specify CP A4502 — see handy form pages 2-3



## NIAGARA GYRO-LAB

Portable laboratory sifter duplicates exactly the results of larger production-type machines. Both continuous and time-limit tests.

Inquire about the GYRO-LAB and full NIAGARA line of GYRO-WHIP and SUPER-SIFTER production machines for scientific separation.

**RICHMOND MFG. CO.**  
LOCKPORT, N. Y.

When inquiring specify CP A4503 — see handy form pages 2-3

CHEMICAL PREVIEW



FOR  
PRECISION SETTING OF  
DIAPHRAGM VALVES --

### THE NULLMATIC REMOTE MANUAL CONTROL

This manual control panel includes  
**THE NULLMATIC  
PRESSURE REGULATOR**

— a pressure controller, which  
operates on the pneumatic "null"  
balance system, and

**holds output pressure constant**

regardless of wide changes in flow or in supply pressure.

Other features include (1) the special gage, with a  
wide bourdon tube that develops 3 or 4 times the

usual pointer torque; (2) a release  
which opens at 1 or 2" H<sub>2</sub>O  
above the regulated pressure;  
(3) a 3-way by-pass for switch-  
over from an automatic control  
instrument.

**NULLMATIC**  
PNEUMATIC  
NULL BALANCE  
INSTRUMENTS  
for measurement  
& transmission of  
PRESSURE  
TEMPERATURE  
SP. GR. FLOW  
LIQUID-LEVEL

Bulletin 401 contains specifications  
of vertical and horizontal panels  
and multiple units.

**MOORE PRODUCTS CO.**

914 E. LYCOMING STREET, PHILADELPHIA 24, PA.

When inquiring specify CP A4504 — see handy form pages 2-3

### STAINLESS STEEL FLOATS for severe service

The strength and corrosion resistance of stainless steel  
makes floats of this material particularly adapted to  
many services where ordinary floats would be short-lived.  
Stainless steel floats may be safely used at operating  
temperatures up to 800 deg. F. For more severe service, at  
temperatures up to 1600 deg. F., floats of stabilized 18-8  
stainless steel, with Chicago Float Works stabilized weld,  
make the most of the exceptional corrosion resistance of  
this material. Spherical (ball) shape only, with standard  
connection fitting, or without connection. Standard  
sizes, 3 to 10 inch diameter.

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other types, in our general catalog, sent upon request.

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"Nothing but Floats" since 1915

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When inquiring specify CP A4505 — see handy form pages 2-3

MAY - JUNE, 1946

### Instruments

information for instrument users. In the first issue the  
subjects discussed are "The Galvanometer and the Bridge",  
"Copper Oxide Rectifiers" and "Shock or Impact Testing  
Mechanisms". Anyone whose interests include instrumen-  
tation problems will be placed on the mailing list to re-  
ceive copies regularly if a request is sent to John Parker,  
Editor, Weston Engineering Notes.

WESTON ELECTRICAL INSTRUMENT CORP., Dept. CP,  
Newark 5, N. J.

When inquiring specify CP A4506 — see handy form pages 2-3

### Midget Impinger Features New All Glass Sampling Units



All-glass impinger units

impinger — its bulk, weight and power requirement, —  
yet it retains the characteristics which yield reproducible re-  
sults and makes it exceptionally serviceable. New all glass  
sampling units for use with the new midget impinger  
have been developed. The new all glass sampling units  
consist of a flask and nozzle with a standard taper  
ground glass stopper. A fritted glass bubbler is also  
available. This equipment makes possible the sampling  
of a wide variety of dusts, gases, vapors. The all glass  
construction of the new impinger units permits thorough  
and easy cleaning and prevents contamination of discolor-  
ation of the sample undergoing test. The air outlet in  
these units is placed at a maximum height, and the pos-  
sibility of drawing over any of the collecting fluids is  
practically eliminated. The impinger nozzle orifice is fixed  
at the correct height and no readjustment is necessary.  
Each nozzle has been checked to insure a flow of within  
4% of one tenth cubic foot per minute at 12 inches water  
vacuum. The all glass impinger units are available in  
sturdy leatherette cases, each holding nine flasks and noz-  
zles.

**Description** — The midget impinger weighs less than ten  
pounds and is contained in a compact, sturdy carrying case  
complete with nine calibrated sampling tubes. The light  
weight, small dimensions and almost effortless operation  
of this instrument greatly broaden the field of dust sam-  
pling by the impinger method. Isolated locations, confined  
spaces, lack of electric current present no problem. The  
pump in conjunction with a vacuum regulator, maintains  
an unfluctuating suction regardless of minor variations in  
the rate or smoothness of cranking. Literature and com-  
plete details on request.

MINE SAFETY APPLIANCE CO., Dept. CP, Braddock,  
Thomas & Meade Sts., Pittsburgh, Pa.

When inquiring specify CP A4507 — see handy form pages 2-3

## Stokes MICROVAC PUMPS

"Higher" Vacuum is the new key to many processing  
operations formerly impossible.

Applications in the fields of chemistry, food process-  
ing, medicine, metallurgy, electronics, etc., call for the  
latest in high vacuum systems.

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Rugged, compact, simple, these pumps are built for  
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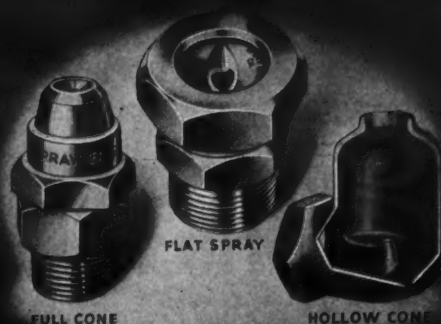
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PUMPS • GAUGES • EQUIPMENT**

When inquiring specify CP A4508 — see handy form pages 2-3



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When inquiring specify CP A4509 — see handy form pages 2-3

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**PITTSBURGH PLATE GLASS COMPANY**

When inquiring specify CP A4510 — see handy form pages 2-3

## Instruments

### Mechanism for Control Problems

*Has slow speed, high torque, non-coasting motor*



**Uses —** For automatic control applications for gas-fired or electric furnaces, automatic reversal of regenerative furnaces, safety circuits for gas purging, and electrical testing apparatus. Also used for special control problems

Control actuator has stall proof motor. Involving sequence action interlocks, directional controls, maintaining contacts and other switching arrangements.

**Features —** This mechanism is an automatic control actuator which operates valves, rheostats, auto transformers and other devices. It makes close control possible under rapidly changing loads, holds temperature or other conditions to a close control point free from the drooping characteristic, and permits operation at maximum sensitivity.

**Description —** The unit is driven by a slow-speed, high torque, non-coasting control mechanism. A non-mechanical magnetic brake permits reproduction of minimum turn down and non-hunting control action without sacrifice to sensitivity. Armature may be stalled without damage to the mechanism and the stalled motor will not overheat. Three control actions are involved in this triple function control system. C-1 is proportional to and opposes any change of the controlled condition within the throttling range. The C-2 and C-3 actions are the automatic reset or droop corrections. These actions eliminate the effect of placing the regulating device in the position from which it started, after a return of the condition to the control point, which would result in continuous hunting; or to prevent the process from settling down at some value off the control point after correction of the throttling range. C-2 is the major part of this correction. It is proportional to the C-1 action, and is introduced to the system as fast but not faster than it can be absorbed. The C-3 action consists of an impulse that is periodically introduced when the system is off the control point, to move the regulating device in the proper direction to restore the system to the control point. This is a timed action and is proportional to the magnitude of the deviation. C-3 prevents the system from staying off the control point due to some unusual combination of demand change and control action. Detailed engineering information is available from the company.

**HAROLD BECK CO.,** Dept. CP, 3644 N. Second St., Philadelphia 40, Penna.

When inquiring specify CP A4511 — see handy form pages 2-3

★

### Etched Stem Thermometers and Hydrometers for Wide Variety of Applications

Methods of manufacture and testing are described in a new folder recently published. A full listing of the line of thermometers and hydrometers is given. Ranges of

• Checking a thermometer by means of a L & N Mueller G-2 Thermometer Bridge.



Here you see but one of the tests used in the H-B laboratories. There are many others, all made with one thought in mind—to produce precisely accurate thermometers. Typical uses of H-B precision instruments include: checking TNT setting point temperatures, checking hydraulic brake oils at minus 40, 50, 60 and 70° F., with mercury-thallium thermometers accurate to 0.1° F. at all points,

etc. If high precision, mercury-in-glass thermometers can help you, turn to H-B with confidence—for technical advice and for equipment of proven quality. Standard instruments range from minus 184° to plus 1000° F. or equivalent centigrade. Specifications conform with various technical societies. Request catalog #14. H-B Instrument Company, 2510 No. Broad St., Philadelphia 32, Pa.



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THERMO-REGULATORS • HYDROMETERS**

When inquiring specify CP A4512 — see handy form pages 2-3

### ASSURE DEFINITE PROTECTION against SPECIFIC GAS HAZARDS with **M·S·A Industrial GAS MASKS**



★ Preferred throughout the chemical industries, M.S.A. Industrial Gas Masks, with the "All-Vision" facepiece, provide comfortable, dependable protection for the worker against scores of individual gases, or combinations of gas, smoke, vapors and dusts. The easy wearing comfort, efficient protection and superior design features of these famous Masks make them first choice for your service requirements.

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WRITE for Bulletin ED-7—gives full details and complete list of gases for which each specific canister provides protection.

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When inquiring specify CP A4513 — see handy form pages 2-3

CHEMICAL PREVIEW



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When inquiring specify CP A4514 — see handy form pages 2-3

## Convection Drying is Faster—More Uniform in GEHRICH OVENS

Whether in a small shelf-loading oven or a large continuous belt or rack oven, the Gehrich method of heat convection and recirculation is materially important in assuring complete uniformity of drying to all the product, regardless of mass or quantity, at a faster rate and at controlled temperature. There's the right kind of Gehrich Oven for your job.



Gehrich Ovens for drying, baking or curing chemicals and other process materials or products are used in such plants as du Pont, Bakelite, Durez, Norton Co., Schenley Distillers, Squibb, U. S. Rubber, etc. They are available in any type and size from the smallest shelf-loading cabinet or laboratory unit to single and multiple-compartment batch or conveyor types. Get Catalog No. 114.

**GEHRICH OVEN DIVISION**

Cabinet, Truck and W. S. ROCKWELL COMPANY  
Conveyor Ovens 220 ELIOT STREET  
for Process Drying FAIRFIELD, CONN.

When inquiring specify CP A4515 — see handy form pages 2-3

MAY - JUNE, 1946

## Instruments

standard and precision thermometers are shown. Precision grade hydrometers for general and special applications are listed for many uses. Copies may be acquired by writing the company.

GOTHAM INSTRUMENT CO., Dept. CP, 140 Wooster St., New York 12, N. Y.

When inquiring specify CP A4516 — see handy form pages 2-3

## Instruments for Refrigeration Service

A 20-page pamphlet describes seven types of instruments for refrigeration applications. Ranges for vacuum, pressure, and temperature, with various available dial sizes are shown. Construction details and a description of the "Re-calibrator" are included. The new bulletin may be secured by writing the manufacturer.

J. P. MARSH CORP., Dept. CP, 2073 Southport Ave., Chicago 14, Ill.

When inquiring specify CP A4517 — see handy form pages 2-3

## Rotameter Measures Corrosive Liquids and Gases

*Uses Haveg, Karbate, Pyrex*

**Uses** — In chemical process plants where corrosive liquids and gases require special piping materials such as Haveg, Karbate, Pyrex, porcelain, hard rubber, platinum, silver, etc., metering problems are being solved by a chemical Rotameter.

**Features** — Designed so that the metered fluid comes into contact only with the special materials and the Pyrex metering tube, the advantages of standard Rotameters are retained. Special parts even when made of fragile materials, are engineered to withstand the hazards of every day use and are amply supported against stresses in the piping and thermal shock.

**Description** — The operating principle of the Rotameter has been known for many years and is a simple convenient rate-of-flow measuring method to meet many flow metering problems. The gas or liquid being metered passes through the Rotameter from bottom to top. The rotor, assumes a position in the glass tapered tube which is determined by the rate of flow. The top of the rotor is read against etched calibration marks on the glass. Rotor and metered fluid are clearly visible providing a continuous check on the condition of each. Piping arrangement preceding or following the meter does not affect its accuracy. In a recently published booklet is contained a detailed description of constructional features. This applies to a Universal Rotameter suited to a majority of rate-of-flow metering applications — Polyphase Rotameter designed to reduce the effect of viscosity — Sanitary Rotameter for food and dairy applications — Chemical Rotameter with rigid connections, glass construction and flexible connections — Armored Rotameter used where metering clear fluids which are hazardous or under high pressure — and armored Rotameter for opaque liquids. Data on the selection and survey sheets also contained in this booklet, assist in the determining proper units to use. Request Bulletin 18-R.

SCHUTTE & KOERTING CO., Dept. CP, 12th & Thompson Sts., Philadelphia 22, Penna.

When inquiring specify CP A4518 — see handy form pages 2-3

## PRECISION CONTROL OF PRACTICALLY EVERYTHING THAT FLOWS



The picture shows a CASH STANDARD Balanced Lever Valve, Type 42-R being operated by a type 100 CASH STANDARD Controller. This combination gives you close automatic control for handling almost anything that will flow through a pipe except some injurious chemicals.

There is a Series 42 Balanced Lever Valve to fit your exact needs. These valves can be applied to innumerable uses. They maintain constant valve inlet pressure, constant valve outlet pressure, a constant differential pressure, constant liquid levels, or regulate rate of flow. When actuated by downstream pressure this valve is a pressure reducing valve — when actuated by upstream pressure it is a back pressure control valve.

The Type 100 CASH STANDARD Controller is sensitive to the slightest variation in the pressure under control and will operate the balanced valve in a smooth floating manner, without hunting or over-shooting.

**CASH STANDARD**  
CONTROLS...  
VALVES

Send for Bulletins 965 and 963  
to get the complete story.

**A. W. CASH COMPANY**  
DECATUR, ILLINOIS

When inquiring specify CP A4519 — see handy form pages 2-3

## THE LITTLE RELAY WITH BIG FEATURES



The Bulletin 104 Relay is small, yes... but small only in size. It will do a big job for you... and right where a larger relay would be hard to get in.

Large wiping contacts that carry heavy loads... heavy contact

### VARIOUS ARRANGEMENTS

Bulletin No. 104 Relays are available in Single and Double Pole, Single and Double Throw, and with or without an auxiliary contact, with fixed, flexible or adjustable contacts, with Bakelite or Radio Frequency insulation.



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OFFICES IN PRINCIPAL CITIES

When inquiring specify CP A4520 — see handy form pages 2-3

pressures to reduce arcing and sparking... wide range of voltages for both D. C. and A. C.

These are but a few of the big features of the little 104 Relay... the relay designed to meet your heavy duty requirements where weight and space are prime factors.

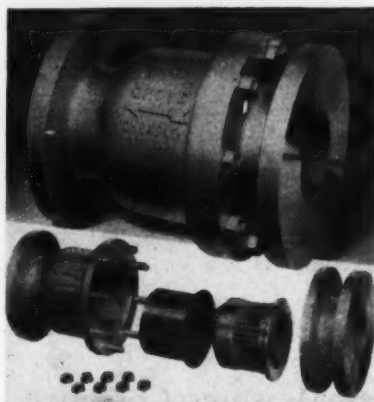
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RELAYS - RESISTORS - RHEOSTATS  
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## Instruments

### Valve For Positive Bubbletight Check of Air, Gas and Water

*Has no moving metal parts; utilizes expanding rubber tube*



Assembled and un-assembled view of check valve with no metal moving parts

Operation is effected by means of a synthetic rubber tube stretched over a slotted, cup shaped metal core, which is securely locked into place within the valve body by the bolted flange head. The flanged ends of the flexible tube serve as a gasket to

*Uses* — This check valve, because of its self-compensating and wear resistant factors, is particularly suited for handling even the most highly corrosive and erosive air, gases or liquids.

*Features* — Design contributes to utmost simplicity in construction and operation. There are no metallic moving parts.

		CAPACITY GALLONS PER MINUTE AND SPRAY ANGLE AT LB. PRESSURE (P) per Nozzle															
		7	10	15	20	30	40	60	80	100	150	200	300	400	500	7	20
1/4" G 2	1/4" G 2	1.14	1.17	1.20	1.23	1.26	1.29	1.32	1.35	1.38	1.41	1.44	1.47	1.50	1.53	1.14	1.17
1/4" G 3	1/4" G 3	1.21	1.24	1.27	1.30	1.33	1.36	1.39	1.42	1.45	1.48	1.51	1.54	1.57	1.60	1.21	1.24
1/4" G 3.2	1/4" G 3.2	1.28	1.31	1.34	1.37	1.40	1.43	1.46	1.49	1.52	1.55	1.58	1.61	1.64	1.67	1.28	1.31
1/4" G 5	1/4" G 5	1.35	1.38	1.41	1.44	1.47	1.50	1.53	1.56	1.59	1.62	1.65	1.68	1.71	1.74	1.35	1.38
1/2" G 1	1/2" G 1	1.42	1.45	1.48	1.51	1.54	1.57	1.60	1.63	1.66	1.69	1.72	1.75	1.78	1.81	1.42	1.45
1/2" G 1.5	1/2" G 1.5	1.49	1.52	1.55	1.58	1.61	1.64	1.67	1.70	1.73	1.76	1.79	1.82	1.85	1.88	1.49	1.52
1/2" G 2	1/2" G 2	1.56	1.59	1.62	1.65	1.68	1.71	1.74	1.77	1.80	1.83	1.86	1.89	1.92	1.95	1.56	1.59
1/2" G 3	1/2" G 3	1.63	1.66	1.69	1.72	1.75	1.78	1.81	1.84	1.87	1.90	1.93	1.96	1.99	2.02	1.63	1.66
1/2" G 4	1/2" G 4	1.70	1.73	1.76	1.79	1.82	1.85	1.88	1.91	1.94	1.97	2.00	2.03	2.06	2.09	1.70	1.73
1/2" G 5	1/2" G 5	1.77	1.80	1.83	1.86	1.89	1.92	1.95	1.98	2.01	2.04	2.07	2.10	2.13	2.16	1.77	1.80
3/4" G 1	3/4" G 1	1.84	1.87	1.90	1.93	1.96	1.99	2.02	2.05	2.08	2.11	2.14	2.17	2.20	2.23	1.84	1.87
3/4" G 1.5	3/4" G 1.5	1.91	1.94	1.97	2.00	2.03	2.06	2.09	2.12	2.15	2.18	2.21	2.24	2.27	2.30	1.91	1.94
3/4" G 2	3/4" G 2	1.98	2.01	2.04	2.07	2.10	2.13	2.16	2.19	2.22	2.25	2.28	2.31	2.34	2.37	1.98	2.01
3/4" G 3	3/4" G 3	2.05	2.08	2.11	2.14	2.17	2.20	2.23	2.26	2.29	2.32	2.35	2.38	2.41	2.44	2.05	2.08
3/4" G 4	3/4" G 4	2.12	2.15	2.18	2.21	2.24	2.27	2.30	2.33	2.36	2.39	2.42	2.45	2.48	2.51	2.12	2.15
3/4" G 5	3/4" G 5	2.19	2.22	2.25	2.28	2.31	2.34	2.37	2.40	2.43	2.46	2.49	2.52	2.55	2.58	2.19	2.22
1" G 1	1" G 1	2.26	2.29	2.32	2.35	2.38	2.41	2.44	2.47	2.50	2.53	2.56	2.59	2.62	2.65	2.26	2.29
1" G 1.5	1" G 1.5	2.33	2.36	2.39	2.42	2.45	2.48	2.51	2.54	2.57	2.60	2.63	2.66	2.69	2.72	2.33	2.36
1" G 2	1" G 2	2.40	2.43	2.46	2.49	2.52	2.55	2.58	2.61	2.64	2.67	2.70	2.73	2.76	2.79	2.40	2.43
1" G 3	1" G 3	2.47	2.50	2.53	2.56	2.59	2.62	2.65	2.68	2.71	2.74	2.77	2.80	2.83	2.86	2.47	2.50
1" G 4	1" G 4	2.54	2.57	2.60	2.63	2.66	2.69	2.72	2.75	2.78	2.81	2.84	2.87	2.90	2.93	2.54	2.57
1" G 5	1" G 5	2.61	2.64	2.67	2.70	2.73	2.76	2.79	2.82	2.85	2.88	2.91	2.94	2.97	3.00	2.61	2.64
1 1/2" G 1	1 1/2" G 1	2.68	2.71	2.74	2.77	2.80	2.83	2.86	2.89	2.92	2.95	2.98	3.01	3.04	3.07	2.68	2.71
1 1/2" G 1.5	1 1/2" G 1.5	2.75	2.78	2.81	2.84	2.87	2.90	2.93	2.96	2.99	3.02	3.05	3.08	3.11	3.14	2.75	2.78
1 1/2" G 2	1 1/2" G 2	2.82	2.85	2.88	2.91	2.94	2.97	3.00	3.03	3.06	3.09	3.12	3.15	3.18	3.21	2.82	2.85
1 1/2" G 3	1 1/2" G 3	2.89	2.92	2.95	2.98	3.01	3.04	3.07	3.10	3.13	3.16	3.19	3.22	3.25	3.28	2.89	2.92
1 1/2" G 4	1 1/2" G 4	2.96	2.99	3.02	3.05	3.08	3.11	3.14	3.17	3.20	3.23	3.26	3.29	3.32	3.35	2.96	2.99
1 1/2" G 5	1 1/2" G 5	3.03	3.06	3.09	3.12	3.15	3.18	3.21	3.24	3.27	3.30	3.33	3.36	3.39	3.42	3.03	3.06
2" G 1	2" G 1	3.10	3.13	3.16	3.19	3.22	3.25	3.28	3.31	3.34	3.37	3.40	3.43	3.46	3.49	3.10	3.13
2" G 1.5	2" G 1.5	3.17	3.20	3.23	3.26	3.29	3.32	3.35	3.38	3.41	3.44	3.47	3.50	3.53	3.56	3.17	3.20
2" G 2	2" G 2	3.24	3.27	3.30	3.33	3.36	3.39	3.42	3.45	3.48	3.51	3.54	3.57	3.60	3.63	3.24	3.27
2" G 3	2" G 3	3.31	3.34	3.37	3.40	3.43	3.46	3.49	3.52	3.55	3.58	3.61	3.64	3.67	3.70	3.31	3.34
2" G 4	2" G 4	3.38	3.41	3.44	3.47	3.50	3.53	3.56	3.59	3.62	3.65	3.68	3.71	3.74	3.77	3.38	3.41
2" G 5	2" G 5	3.45	3.48	3.51	3.54	3.57	3.60	3.63	3.66	3.69	3.72	3.75	3.78	3.81	3.84	3.45	3.48
2 1/2" G 1	2 1/2" G 1	3.52	3.55	3.58	3.61	3.64	3.67	3.70	3.73	3.76	3.79	3.82	3.85	3.88	3.91	3.52	3.55
2 1/2" G 1.5	2 1/2" G 1.5	3.59	3.62	3.65	3.68	3.71	3.74	3.77	3.80	3.83	3.86	3.89	3.92	3.95	3.98	3.59	3.62
2 1/2" G 2	2 1/2" G 2	3.66	3.69	3.72	3.75	3.78	3.81	3.84	3.87	3.90	3.93	3.96	3.99	4.02	4.05	3.66	3.69
2 1/2" G 3	2 1/2" G 3	3.73	3.76	3.79	3.82	3.85	3.88	3.91	3.94	3.97	4.00	4.03	4.06	4.09	4.12	3.73	3.76
2 1/2" G 4	2 1/2" G 4	3.80	3.83	3.86	3.89	3.92	3.95	3.98	4.01	4.04	4.07	4.10	4.13	4.16	4.19	3.80	3.83
2 1/2" G 5	2 1/2" G 5	3.87	3.90	3.93	3.96	3.99	4.02	4.05	4.08	4.11	4.14	4.17	4.20	4.23	4.26	3.87	3.90
3" G 1	3" G 1	3.94	3.97	4.00	4.03	4.06	4.09	4.12	4.15	4.18	4.21	4.24	4.27	4.30	4.33	3.94	3.97
3" G 1.5	3" G 1.5	4.01	4.04	4.07	4.10	4.13	4.16	4.19	4.22	4.25	4.28	4.31	4.34	4.37	4.40	4.01	4.04
3" G 2	3" G 2	4.08	4.11	4.14	4.17	4.20	4.23	4.26	4.29	4.32	4.35	4.38	4.41	4.44	4.47	4.08	4.11
3" G 3	3" G 3	4.15	4.18	4.21	4.24	4.27	4.30	4.33	4.36	4.39	4.42	4.45	4.48	4.51	4.54	4.15	4.18
3" G 4	3" G 4	4.22	4.25	4.28	4.31	4.34	4.37	4.40	4.43	4.46	4.49	4.52	4.55	4.58	4.61	4.22	4.25
3" G 5	3" G 5	4.29	4.32	4.35	4.38	4.41	4.44	4.47	4.50	4.53	4.56	4.59	4.62	4.65	4.68	4.29	4.32
3 1/2" G 1	3 1/2" G 1	4.36	4.39	4.42	4.45	4.48	4.51	4.54	4.57	4.60	4.63	4.66	4.69	4.72	4.75	4.36	4.39
3 1/2" G 1.5	3 1/2" G 1.5	4.43	4.46	4.49	4.52	4.55	4.58	4.61	4.64	4.67	4.70	4.73	4.76	4.79	4.82	4.43	4.46
3 1/2" G 2	3 1/2" G 2	4.50	4.53	4.56	4.59	4.62	4.65	4.68	4.71	4.74	4.77	4.80	4.83	4.86	4.89	4.50	4.53
3 1/2" G 3	3 1/2" G 3	4.57	4.60	4.63	4.66	4.69	4.72	4.75	4.78	4.81	4.84	4.87	4.90	4.93	4.96	4.57	4.60
3 1/2" G 4	3 1/2" G 4	4.64	4.67	4.70	4.73	4.76	4.79	4.82	4.85	4.88	4.91	4.94	4.97	5.00	5.03	4.64	4.67
3 1/2" G 5	3 1/2" G 5	4.71	4.74	4.77	4.80	4.83	4.86	4.89	4.92	4.95	4.98	5.01	5.04	5.07	5.10	4.71	4.74
4" G 1	4" G 1	4.78	4.81	4.84	4.87	4.90	4.93	4.96	4.99	5.02	5.05	5.08	5.11	5.14	5.17	4.78	4.81
4" G 1.5	4" G 1.5	4.85	4.88	4.91	4.94	4.97	5.00	5.03	5.06	5.09	5.12	5.15	5.18	5.21	5.24	4.85	4.88
4" G 2	4" G 2	4.92	4.95	4.98	5.01	5.04	5.07	5.10	5.13	5.16	5.19	5.22	5.25	5.28	5.31	4.92	4.95
4" G 3	4" G 3	4.99	5.02	5.05	5.08	5.11	5.14	5.17	5.20	5.23	5.26	5.29	5.32	5.35	5.38	4.99	5.02
4" G 4	4" G 4	5.06	5.09	5.12	5.15	5.18	5.21	5.24	5.27	5.30	5.33	5.36	5.39	5.42	5.45	5.06	5.09
4" G 5	4" G 5	5.13	5.16	5.19	5.22	5.25	5.28	5.31	5.34	5.37	5.40	5.43	5.46	5.49	5.52	5.13	5.16
4 1/2" G 1	4 1/2" G 1	5.20	5.23	5.26	5.29	5.32	5.35	5.38	5.41	5.44	5.47	5.50	5.53	5.56	5.59	5.20	5.23
4 1/2" G 1.5	4 1/2" G 1.5	5.27	5.30	5.33	5.36	5.39	5.42	5.45	5.48	5.51	5.54	5.57	5.60	5.63	5.66	5.27	5.30
4 1/2" G 2	4 1/2" G 2	5.34	5.37	5.40	5.43	5.46	5.49	5.52	5.55	5.58	5.61	5.64	5.67	5.70	5.73	5.34	5.37
4 1/2" G 3	4 1/2" G 3	5.41	5.44	5.47	5.50	5.53	5.56	5.59	5.62	5.65	5.68	5.71	5.74	5.77	5.80	5.41	5.44
4 1/2" G 4	4 1/2" G 4	5.48	5.51	5.54	5.57	5.60	5.63	5.66	5.69	5.72	5.75	5.78	5.81	5.84	5.87	5.48	5.51
4 1/2" G 5	4 1/2" G 5	5.55	5.58	5.61	5.64	5.67	5.70	5.73	5.76	5.79	5.82	5.85	5.88	5.91	5.94	5.55	5.58
5" G 1	5" G 1	5.62	5.65	5.68	5.71	5.74	5.77	5.80	5.83	5.86	5.89	5.92	5.95	5.98	6.01	5.62	5.65
5" G 1.5	5" G 1.5	5.69	5.72	5.75	5.78	5.81	5.84	5.87	5.90	5.93	5.96	5.99	6.02	6.05	6.08	5.69	5.72
5" G 2	5" G 2	5.76	5.79	5.82	5.85	5.88	5.91	5.94	5.97	6.00	6.03	6.06	6.09	6.12	6.15	5.76	5.79
5" G 3	5" G 3	5.83	5.86	5.89	5.92	5.95	5.98	6.01	6.04	6.07	6.10	6.13	6.16	6.19	6.22	5.83	5.86
5" G 4	5" G 4	5.90	5.93	5.96	5.99	6.02	6.05	6.08	6.11	6.14	6.17	6.20	6.23	6.26	6.29	5.90	5.93
5" G 5	5" G 5	5.97	6.00	6.03	6.06	6.09	6.12	6.15	6.18	6.21	6.24	6.27	6.30	6.33	6.36	5.97	6.00
6" G 1	6" G 1	6.04	6.07	6.10	6.13	6.16	6.19	6.22	6.25	6.28	6.31	6.34	6.37	6.40	6.43		



## 2 COMPLETE LINES OF MOTOR CONTROL FOR CLASS I, GROUP D, HAZARDOUS LOCATIONS



**AIR-BREAK**  
explosion-resisting equipment embodies standard Square D motor control devices mounted in heavy, ribbed, cast iron enclosures. Vertical action starters provide double-break silver contacts provide trouble-free operation, complete accessibility, and low maintenance expense.

at left: Air-break Starter in Class I, Group D enclosure

**OIL-IMMERSED**  
starters feature easy installation and servicing. Cast iron head has wiring manifold which permits conduit entrance from five directions. Removable cover plate facilitates wiring. Track-type guides prevent swinging or splashing while raising or lowering tank.



at right: Oil-Immersed Combination Starter

WRITE FOR DETAILS



**SQUARE D COMPANY**

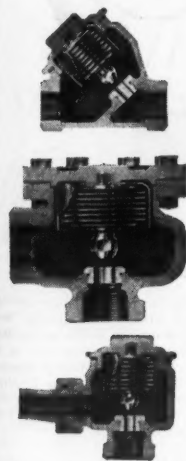
DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A4524—see handy form pages 2-3

## Nicholson Steam Traps

... choice of maintenance men who value

### → SIMPLICITY



The extreme simplicity, which distinguishes Nicholson thermostatic steam traps, is suggested by the cut-away views at left. Equipped with rugged bellows, they offer the most economical and easily maintained method of discharging condensate and air from many types of steam-using equipment. This has been proved by plant records the nation over.

**FIVE FAST-ACTING TYPES:** sizes 1/4" to 2"; pressures to 225 lbs. In addition to bellows-type steam traps Nicholson makes piston and weight-operated traps for many mediums.

Send for Catalog 444  
or see Sweet's

**W. H. NICHOLSON & CO.**  
181 OREGON ST., WILKES-BARRE, PA.

## Instruments

seal off the downstream from the upstream line. Other advantages of this design of valve are positive bubble-tight shut-off; instantaneous operation; avoidance of pressure impulses; compact and rugged construction; silent operation.

**Description** — The illustration (lower view) shows the simplified assembly of this "Chexflo" valve consisting of: valve body, flexible synthetic rubber tube; slotted cupshaped core; flange closure. The only moving part is the synthetic tube, which expands to open and contracts to close. In view of the tube's uniform and constant spring rate, there is no inertia set up to cause operation beyond flow requirements. Moreover, the flexive tube closes instantly on a balanced flow prior to the commencement of backflow which eliminates any tendency to shock or water hammer through the line. Illustrated bulletin Number 610 gives complete details, lists sizes in iron and steel types.

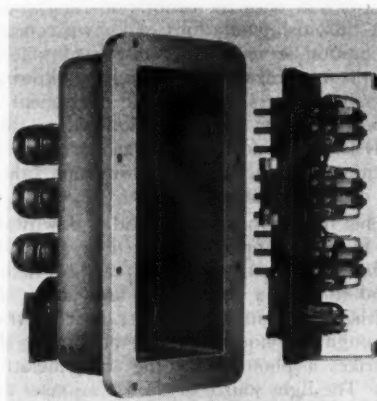
GROVE REGULATOR CO., Dept. CP, 6509 Green St., at 65th, Oakland 8, California.

When inquiring specify CP A4526—see handy form pages 2-3

★

## Alarm System Saves Installation and Maintenance Cost

Standard unit is flexible



Unilarm

**Uses** — Designed for use in process industries, laboratories, pilot plants, power plants, etc. the Unilarm indicates departure from a predetermined normal condition of pressure, temperature, levels and other applications.

**Features** — This unit

alarm system provides in a compact enclosure, contact making devices with a plug-in panel that can be easily removed when adjustment or maintenance is needed. The compact construction saves installation costs.

**Description** — Indicator lights are provided to make continuous or flashing signals and the alarm control causes a howler or a gong to sound when abnormal conditions exist. The operator acknowledges the alarm by turning an acknowledging switch which silences the alarm and flashing light. After conditions return to normal, the alarm light goes out, the normal light comes on and the system is ready for another cycle of operation. Equipment is available for panel board or surface mounting, with cast explosion-proof enclosures for Class 1, Groups C and D hazardous locations, cast vapor tight enclosures for moist locations and sheet steel enclosed for general use. Bulletins and technical data furnished on request.

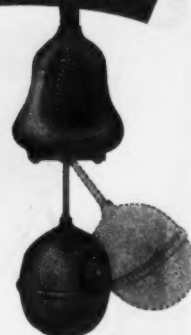
RUSSELL & STOLL CO., INC., Dept. CP, 125 Barclay St., New York 7, N. Y.

When inquiring specify CP A4527—see handy form pages 2-3

## REGULATE

Bin or Tank  
Level

with **TELLEVE**  
automatic flow control



Keep bulk materials or liquids at the right level—never too much or too little. An S-A TELLEVE switch, operated by rising or falling material level, operates valves, gates, conveyors, etc. without attention. Let TELLEVE prevent overflows or empties. A TELLEVE quickly pays for itself.



Check possible applications in your plant... and TELLEVE'S advantages. Write today for descriptive Bulletin No. 440.

**STEPHENS-ADAMSON**

Tellevel-Bin Level Controls Car Loaders Car Pullers Winches SealMaster Ball Bearings

11 RIDGEWAY AVE., AURORA, ILLINOIS

When inquiring specify CP A4528—see handy form pages 2-3



### Makes Basements Bone-Dry!

Leaks, water seepage in concrete walls can be stopped instantly—permanently, with FLEXTITE. This amazing material actually seals against water pressure. Will convert wet basements into bone-dry useful space. Efficient as a plaster coat for waterproofing and dampproofing. Used in elevator pits, tunnels, dams, concrete water tanks, retaining walls. In reconstruction work, broken pillars and beams can be quickly restored, even reshaped, with FLEXTITE.

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Details of

**FLEXTITE**

**FLEXROCK COMPANY**

3611-A Filbert St., Philadelphia 4, Pa.

Please send me complete FLEXTITE information... details of FREE TRIAL OFFER—no obligation.

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Company .....  
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When inquiring specify CP A4529—see handy form pages 2-3

When inquiring specify CP A4525—see handy form pages 2-3



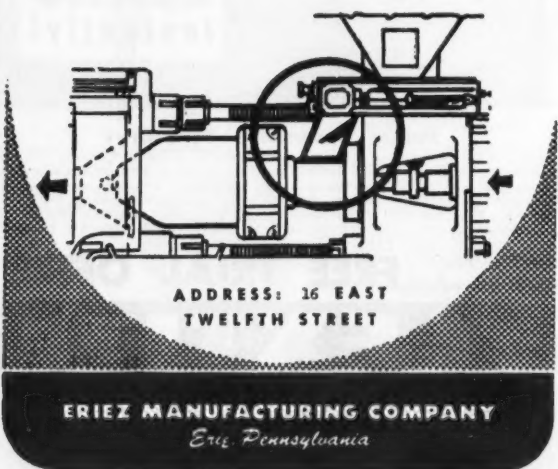
### The New ERIEZ Plastics Magnet Solves Your Tramp Iron Problem

Now, A New ERIEZ Non-Electric Plastics Magnet is saving its many users hundreds of dollars by removing all tramp iron and steel from plastics materials before the metal can clog nozzles or dies on Reed-Prentice, Watson-Stillman, DeMottia, Loominster, Lester Phoenix and other injection and extrusion molding machines.

This new ERIEZ Non-Electric, permanent magnet is made of powerful Alnico alloy — a special addition to the standard ERIEZ line of magnets so efficiently eliminating tramp metals from all kinds of industrial materials in process. The ERIEZ Plastics Magnet is especially designed for installation in the aluminum chute (just below the measuring cylinder) of injection and extrusion molding machines. The magnet is small, compact . . . very powerful. (See illustrations.)

Write today for Bulletin 102A and complete details on how ERIEZ Non-Electric Plastics Magnets can save you money and protect your machines, by removing dangerous tramp metals.

When it's Magnetic Protection . . .  
See Eriez First



When inquiring specify CP A4530 — see handy form pages 2-3

## Instruments

### Colorimeter Using Nessler Tubes — Highly Sensitive

For water analysis and other tests requiring accurate measurement of faint colorations

**Uses** — A new photoelectric instrument designed especially for water analysis and any other tests requiring the accurate measurement of faint colorations and turbidities.

**Features** — This colorimeter (Model 450) is a photoelectric instrument for measuring the light transmission of liquids in Nessler tubes. The light beam passes vertically through a long liquid column, making the instrument particularly suitable for the measurement of samples of pale color or faint turbidity. It furnishes high sensitivity in tests of this kind and permits operation with inexpensive Nessler tubes as sample holders. Furthermore, it is suitable for quantitative analysis of food products for impurities, for trace analysis of metals, soil extracts and all other determinations in which only a comparatively slight coloration can be developed. Since photoelectric colorimeters operating with inexpensive long sample holders have not been generally available, it was necessary in the past to carry out all colorimetric tests on pale colors by way of visual comparison, using either glass color standards or standard color solution. The Model 450 makes it possible to obtain objective results which are reproducible and independent of light conditions. In quantitative analysis it is only necessary to establish once the calibration for the determination in question, using solutions of known concentration. This calibration serves in all subsequent routine tests, to translate the transmission readings of unknowns into their concentration values. When the instrument is used for the purpose of color standardization, rather than the chemical analysis, it is mostly not even necessary to establish a calibration in as much as the transmission values can be interpreted directly as color.

**Description** — The light projected vertically downward by a concentrated-filament lamp is collimated by a lens to form a parallel beam. It passes through an adjustable iris diaphragm and through a color filter, and enters the open surface of the liquid in the Nessler tube. After having passed through the liquid and the bottom of the tube, the light strikes a photocell of the self-generating barrier-layer type. The light source of the Colorimeter can be operated either from 105-125 v., 60 c. SC power line or 6-8 v. battery.

The instrument is furnished with four Nessler tubes 32 mm. outside diameter and 220 mm. high. The tubes are graduated for 100 ml. and 50 ml. In addition to these volumetric graduations, the tubes carry 3 light path markings, for 150, 75, and 37.5 mm. light path. However, all "low form" Nessler tubes which may be in the possession of the user can be employed in connection with the instrument. The instrument is furnished with 6 glass color filters. These selective glass color filters are not intended to be used as standards for color comparison but serve to isolate the special wave band in which the samples to be tested show high light absorption.

The Colorimeter Model 450 is furnished as previously specified. Special models are available which, in addition to battery operation, permit operation from 105-125 v., 50 c., AC or from 105-125 v., 25c., AC lines. 220/110 volt step-down transformers are available. The built-in stabilizing system of the Colorimeter gives stability of readings even where the voltage of AC power line is subject to considerable fluctuations. However, the stabilizing effect is dependent upon the frequency of the power line

THE PATTERSON FOUNDRY AND MACHINE CO.  
EAST LIVERPOOL, OHIO, U.S.A.

When inquiring specify CP A4531 — see handy form pages 2-3



### COMPLETE PENETRATION to Root of Butt Welded Joints\*

Controlled, Two-Stage Welding by the Westport Method now provides maximum bondage and strength at butt welded pipe joints, without "over-welding," which causes protrusion of weld metal on the inside of the pipe. The patented Westport Method assures a pipe contour smoother on the inside than on the outside, without the use of backing rings, which themselves have many disadvantages. . . . Our bulletin "Something New in Welding" tells the complete story. Write for it today. And remember, while our shop pre-fabricated piping can be made with any type of joint, we believe you'll prefer and specify the Westport, after you read our bulletin.

WESTPORT JOINT

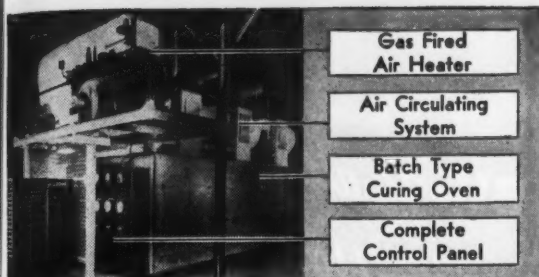
W. K. MITCHELL & CO., INC.  
2946 ELLSWORTH STREET  
PHILADELPHIA 48, PA.  
SINCE 1899

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PIPE FABRICATORS AND CONTRACTORS

When inquiring specify CP A4532 — see handy form pages 2-3





## ROSS *Plastics* Curing DRYER

OPERATING IN PLANT OF  
**Garfield Mfg. Co.**

Uniform curing is assured with these 3 Ross Truck Type Ovens, each with its own air circulating system, temperature control and exhaust. This design permits operating each oven independently for different cures. Uniform heating is achieved with the Ross Central Gas Fired Heater, equipped with complete automatic pilot and safety controls.

Ross Gas Fired Heaters and Ovens are Individually Designed.

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When inquiring specify CP A4533 — see handy form pages 2-3

**NOW YOU CAN "Hang the Sky"**  
**TO HELP THEM SEE BETTER**  
**Over-ALL Lighting**  
*by Wakefield*

### a new approach to office lighting

Specifically designed for eyesight protection, Wakefield's new Over-ALL lighting provides smooth, pleasing, diffused light over all... makes for fewer errors, less eye-strain, more cheerfulness. Based on lighting results where they count. You'll like it. Ask your Wakefield distributor about Over-ALL lighting—or write for new booklet. The F. W. Wakefield Brass Co., Vermilion, Ohio.

**Wakefield**

LIGHTING EQUIPMENT FOR OFFICE, SCHOOL AND DRAFTING ROOM

When inquiring specify CP A4534 — see handy form pages 2-3

## Instruments

being rigidly controlled. In some instances, as where the supply may be from small local power plants, battery operation should be employed.

A comprehensive bulletin Number 450 gives those interested unusually complete data on this instrument, its specifications, operation and applications. Some of the subject headings include, "Water Turbidity and Color." Under this heading is included discussion of "Color," "Samples Containing Both Turbidity and Color" and "Samples of High Color Value Containing Turbidity." The section of Chemical Analysis of Water discusses this subject in some detail and includes a number of paragraphs which by way of example describe some of the methods of analysis as carried out photoelectrically by means of this colorimeter.

PHOTOVOLT CORP., Dept. CP, 95 Madison Ave., New York 16, N. Y.

When inquiring specify CP A4535 — see handy form pages 2-3

## Multi-Ranger Measures Five Factors

May be used as a D.C. voltmeter, milliammeter, ohmmeter, A.C. voltmeter and decibel meter

**Uses** — A foundation instrument, the Multi-Ranger, is designed to permit the user to assemble a highly accurate instrument for use as a voltmeter, milliammeter, high and low resistance ohmmeter, A.C. voltmeter and decibel meter.

**Features** — The instrument is ideally suited for use as a 2500 ohm-per-volt or as a 1000 phm-per-volt meter, as a milliammeter, low and high range ohmmeter and as a 1000 ohm-per-volt A.C. voltmeter. With proper switching arrangements all these features can be incorporated in one piece of equipment.

**Description** — Scale ranges, as normally supplied, include: 0-10-50-250 D.C. volts, 0-10-50-250 A.C. volts, 0-500 ohms and —10 megohms, —10 to plus 14 db. By use of the proper multiplier the 0-10 voltmeter scale can also be used as 0-1000 volts. The scales are printed in red, black and green. Circuits supplied with each instrument provide clear instructions for the construction of single or multi-range equipment; all component values are shown on the circuits. Further information may be obtained from the manufacturer.

MARION ELECTRICAL INSTRUMENT CO., Dept. CP, Manchester, N. H.

When inquiring specify CP A4536 — see handy form pages 2-3

## Stainless Steel Valves & Fittings Assigned Number for All Castings

A recent innovation in foundry practice is described in a folder on stainless steel valves. It announces a new procedure of registering stainless steel heat analyses and stamping all castings with corresponding numbers for identification that is permanent. Certificates indicating these analyses are available where desired, applying to all parts coming in contact with media handled. This development is of particular in connection with the maker's stainless steel valves. The line embraces standard types of globe, gate, Y, check, needle and quick opening valves. Diagrams in the bulletin show four of the many types of certified valves available as well as a variety of fittings. Copies on request.

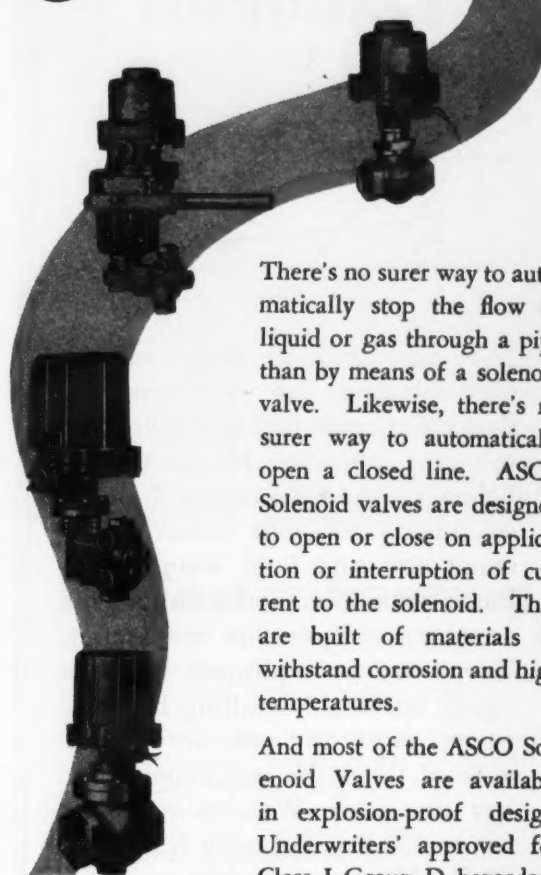
COOPER ALLOY FOUNDRY CO., Dept. CP, Bloy St. & Ramsey Ave., Hillside, N. J.

When inquiring specify CP A4537 — see handy form pages 2-3

*Best Safe*

to Use for Automatic Control of Liquid or Gas Flow

to Use in Underwriters' Class I Group D, Hazardous Locations



There's no surer way to automatically stop the flow of liquid or gas through a pipe than by means of a solenoid valve. Likewise, there's no surer way to automatically open a closed line. ASCO Solenoid valves are designed to open or close on application or interruption of current to the solenoid. They are built of materials to withstand corrosion and high temperatures.

And most of the ASCO Solenoid Valves are available in explosion-proof design, Underwriters' approved for Class I Group D hazardous

locations, making them safe to use in chemical plants.

Designing and making solenoid valves has been our business for more than forty years. We know solenoid valves and their proper application. Write us in detail about the flow of liquid or gas which you would like to have controlled automatically.



We also manufacture a quality line of Automatic Transfer Switches, Remote Control Switches, Contactors & Relays.

**Automatic Switch Co.**

47 EAST 11 STREET

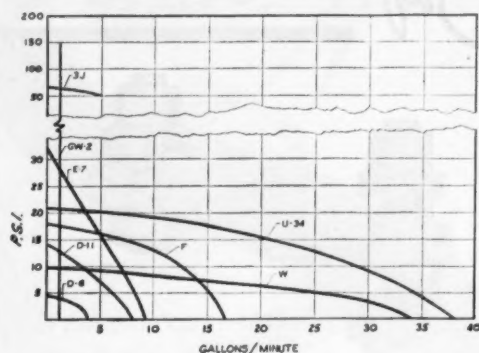
NEW YORK 3, N. Y.

5-AB-1

When inquiring specify CP A4538 — see handy form pages 2-3

## EASTERN PUMPS

COVER A WIDE RANGE OF PERFORMANCE



The performance chart shown above typifies the wide range of performance available through the selection of Eastern Midget Pumps. These pumps can provide the right equipment for your needs where small size and light weight combined with high performance and economy of operation are factors. They may be equipped with the easily adjustable stuffing boxes or rotary seals and will not leak at several times the maximum working pressures. Weights are from 2¾ to 100 lbs., capacity from ½ to 70 G.P.M. and pressures range up to 250 P.S.I. Standard models of many pumps are available in Monel Metal, Stainless Steel, Hastelloy "C", Cast Iron, Bronze and other metals and alloys. Models are motor driven, including Underwriters' approved explosion-proof motors, air driven or belt driven. Write for NEW CATALOG describing entire line of pumps.



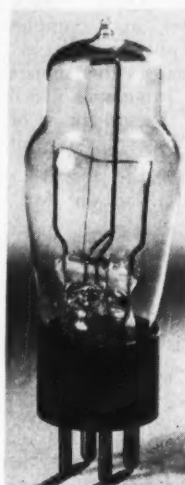
**EASTERN  
ENGINEERING CO.**  
49 Fox St., New Haven 6, Conn.

When inquiring specify CP A4539 — see handy form pages 2-3

## Instruments

### Thermocouple Tube For Measuring Vacuum And Low Gas Pressures

With microammeter records pressures of  $10^{-1}$  to  $10^{-5}$  millimeters



Thermocouple tube

**Uses** — This tube with a hot junction of a thermocouple element centered on a filament heater is designed to measure gas pressure changes through variations in the thermal conductivity of the gas. Used with microammeter it will record pressures of  $10^{-1}$  to  $10^{-5}$  millimeters with plus or minus 5% accuracy. Applications include laboratory use as a pressure gauge leak detector in evacuating apparatus.

**Description** — Operated in a simple three volt battery and resistance circuit, it may be sealed directly into evacuating apparatus by means of tabulation provided on top of bulb. Direct measurement may be made with a 0-250 microammeter which may be calibrated for each gas measured. Maximum accuracy is assured by shielding the equipment from sources of radiant heat and air currents. The tube, 4 7/16" long over pins and 1 9/16" maximum bulb diameter, is supplied with small four-pin base and may be operated in any position. Maximum value electrical ratings are: filament resistance 3.0 ohms; thermocouple resistance 5.0 ohms, filament current 125 milliamperes; and thermocouple current 250 microamperes.

SYLVANIA ELECTRIC PRODUCTS, INC., (Electronics Div.), Dept. CP, Boston 15, Mass.

When inquiring specify CP A4540 — see handy form pages 2-3

★

### Sealed Plug-in Relays Have Cylindrical Can for Protection

For use where space is limited

**Uses** — These recently developed hermetically sealed plug-in relays have been developed especially for applications where space is limited. They may be employed advantageously on electronic installations where quick relay replacement is necessary, where exposed wiring is hazardous or where severe atmospheric conditions are encountered.

**Description** — Completely enclosed in cylindrical can for protection. Relay coil and contact connections are totally enclosed within the metal housing and are brought to the prongs of a standard octal plug base. Available in contact combinations to double pole, double throw with AC contact ratings (at commercial frequencies) of 4 amps., from 0-115 v. and DC contact ratings of 5 amps., 25-115 v. Relays are vibration resistant to 10 times gravity and are provided with self-aligning silver-to-silver contacts.

WARD LEONARD ELECTRIC CO., Dept. CP, Mount Vernon, N. Y.

When inquiring specify CP A4541 — see handy form pages 2-3



Tremendous forces are set to work . . . to open and close Clayton Valves . . . merely by a touch of the fingertip. Clayton does it by applying hydraulic control to the operation of valves. Clayton Feather-Touch Pilot Controls are operated mechanically, electrically, by float mechanisms, by adjustable counterbalance. Clayton Valves open and close instantly, but without causing surge or line hammer. Ask for Engineering Data.



**CLAYTON VALVES**  
with FEATHER-TOUCH CONTROL  
ALHAMBRA, CALIFORNIA

When inquiring specify CP A4542 — see handy form pages 2-3



**A MOUTHFUL  
at EVERY BITE**

● This is not only the claim of OWEN, the name symbolic of the highest grade Chemical Handling Buckets for 40 years—Operators everywhere, "on and off" the job, volunteer this testimony.

And — there's a reason. Owen-engineered buckets incorporate special features which have been continually improved.

THE OWEN BUCKET CO. Branches: NEW YORK • PHILADELPHIA  
7850 BREAKWATER AVE. • CLEVELAND, OHIO CHICAGO • BERKELEY, CAL.

and **MORE BITES  
PER DAY**

When inquiring specify CP A4543 — see handy form pages 2-3



## HEAVY DUTY RECEPTACLES AND PLUGS



**VAPOR TIGHT  
WATER TIGHT  
AND  
EXPLOSION  
PROOF**

Tested in service in shipyards, airports, stadiums and industry, Russell and Stoll fixtures and fittings have pioneered with prestige for more than forty years.

The "know how" of design, precision production and careful inspection of R & S products meet all requirements of moisture, dust or explosion hazards.

The heavy duty angle type receptacle and plug illustrated is standard in ratings 10 to 400 amperes and single to four pole. Ask for the 300 page R & S catalog.

Since 1902



**RUSSELL & STOLL COMPANY**  
EXPLOSION-PROOF, WATER-TIGHT AND EVER-LOCK RECEPTACLES, PLUGS, CONNECTORS, SWITCHES AND FIXTURES  
125 BARCLAY STREET - NEW YORK 7, N. Y.

When inquiring specify CP A4544 — see handy form pages 2-3

## INTERNATIONAL

### PORTABLE MIXERS

MEDIUM AND HEAVY DUTY. Modern Design and many different types, Direct Drive, Gear Motor, Slow-Speed.

### PERMANENT MIXERS

With or without Tanks—Top or Side Entrance—Stirrers of the propeller or turbine type.

**DRY BLENDERS, AUTOCLAVES,  
KETTLES AND DIGESTERS**



CATALOG  
Mixers, Blenders, Autoclaves, Kettles, Digesters, etc.  
No. 111—Now ready  
CATALOG No. 89  
on BALL MILLS—  
either catalog or  
both sent on request

**INTERNATIONAL ENGINEERING, INC.**  
Dayton 1, Ohio.

NEW YORK, 15 Park Row • CHICAGO, 407 S. Dearborn  
LOS ANGELES 4, 150 N. MORTON AVE.

When inquiring specify CP A4545 — see handy form pages 2-3

## Instruments

### Glossmeter Determines Specular Gloss of Industrial Finishes

*Lamp with special filament used to afford  
more accurate light beam*

**Uses** — Designed primarily to test samples for compliance with specifications for original glass, and to measure changes in gloss surfaces, resulting from weathering, wear, abrasion and other treatments.

**Features** — The 60° angle and other features conform to the conditions of procedure A of ASME Specification D523-41T for specular Gloss of Paint Finishes, which were found to give the best correlation with visual judgements of gloss of paints. The instrument's compactness, the rapidity with which measurements may be made, and the relative cost make it suitable for technical workers. In connection with gloss measurements, it is important to note that the present instrument measures specular gloss (indicative of shininess rather than sharpness of reflective image gloss. Changes of a few per cent in specular gloss, due to weathering, abrasion, chemical attack, can be detected and measured with this instrument even in cases where the effects cannot be observed visually.

**Description** — This apparatus consists of a light-tight housing, built-in lamp with reflector and a General Electric illumination meter. The instrument is small and compact, being only 10" x 7" x 3". Direct readings of gloss are obtained in two seconds, on the scale of the meter. These are reproducible to better than two per mil. A restricted aperture is provided for the gloss opening so that the diffuse reflectance correction for the gloss readings is a minimum.

The battery box supplied with the battery type glossmeter holds six 1½ v. dry cells, and has, in addition, a place for carrying the glossmeter while not in use and a polished black glass for calibrating the instrument.

The rheostat which controls the intensity of the lamp is on the battery box. The glossmeter with transformer for use on 110 or 220 v. current is somewhat longer but otherwise identical with the battery model.

The glossmeter is contained in one side of the carrying case and is accessible through a door on the side. To operate, place the instrument on the black glass gloss standard, holding the handle with the right hand and depressing switch with thumb. The rheostat knob is adjusted.

**HENRY A. GARDNER LABORATORY, INC., Dept. CP, 4723 Elm St., Bethesda 14, Md.**

When inquiring specify CP A4546 — see handy form pages 2-3

★

### Bellows Differential Flow Meter Body Operates On New Principle — Requires No Mercury

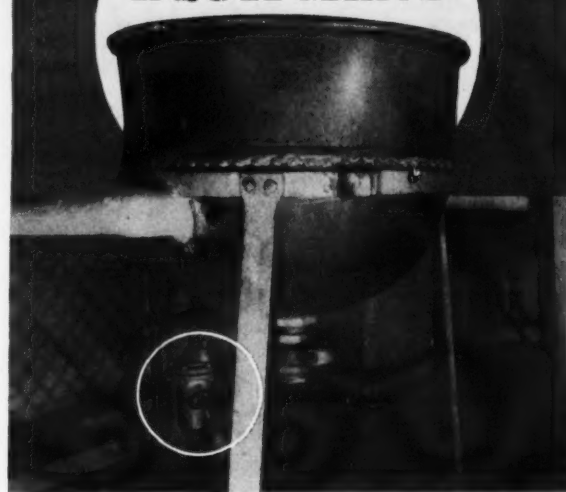
A bellows-differential flow meter is a recent addition to maker's line of mercury manometer flow meters. It is described in a new bulletin F 1602. This new instrument will be made as a mechanical flow meter, as an electric flow meter, and as a pneumatic-transmission flow meter in a complete line of recording, indicating, integrating, and automatic controlling models.

The meter body operating on a new principle, requires no mercury in its operation. A unique method of transmitting bellows motion to the pen arm is employed, which completely isolates the meter-body shaft from the measured fluid. Copies of the bulletin are available upon request.

**THE BRISTOL COMPANY, Dept. CP, Waterbury 91, Conn.**

When inquiring specify CP A4547 — see handy form pages 2-3

## HOW TO TRAP STEAM JACKETED EQUIPMENT



## for faster heating

Correct drainage of condensate from steam jacketed kettles, vats, cylinders, pans and similar equipment can save time and save steam. This is substantiated by reports from users of Armstrong Steam Traps: A Chicago firm reduced cooking time on kettles 75% — from 40 minutes to 10 minutes; a California packing company reduced average cooking time from 27 to 17 minutes; other companies report similar benefits.

The reasons for these results are two:

1. **Armstrong trap design**—no steam leakage, big air venting capacity, ability to discharge condensate as fast as it accumulates regardless of temperature.

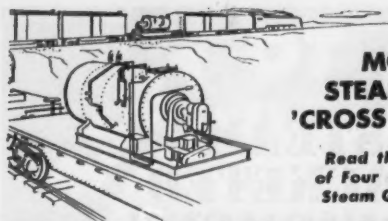
2. **Armstrong recommendations**—covering trap selection and installation practice. Based on tests and experience on thousands of installations.

Armstrong Traps are sold through leading distributors everywhere on a basis of "satisfaction guaranteed." For better trapping, write to **ARMSTRONG MACHINE WORKS, 880 Maple St., Three Rivers, Mich.**



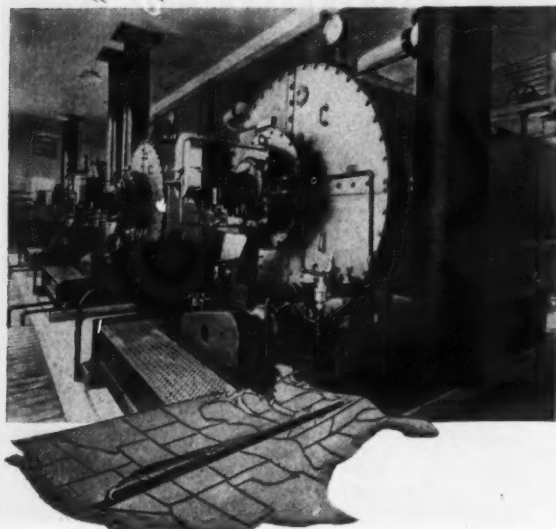
Ask for a copy of **THE ARMSTRONG STEAM TRAP BOOK**. It contains complete engineering data on how to get more work out of all kinds of steam heated processing equipment. Free to engineers, owners, operators, and maintenance men.

When inquiring specify CP A4548 — see handy form pages 2-3



## MOVE A STEAM PLANT 'CROSS COUNTRY?'

Read this Travelogue  
of Four Cleaver-Brooks  
Steam Generators . . .



**U**RGENTLY in need of steam generating equipment, a prospective buyer on the West Coast heard of four steam "boilers" available in the East. Questions of purchase arose. Would it be much of a job dismantling them? Would it be worth while in terms of cost involved? If they could be shipped — how soon? How long would it take to re-install them?

Now these four available boilers were Cleaver-Brooks self-contained or "packaged" steam generators. Things began to happen. Within a few hours, the generators were loaded on flat cars and started on their 3000 mile journey.

Re-installation was equally simple. Since no settings or smokestack were required, the boilers were set into place, necessary service connections made, and in a short time these Cleaver-Brooks generators were in full operation.

The cost? . . . the original "boiler" and its component investment were fully recovered, except for minor installation costs. The above picture shows the final installation — note the clean, efficient appearance.

### CLEAVER-BROOKS COMPANY

343 E. Keefe Avenue

Milwaukee 12, Wis.

WRITE ON YOUR BUSINESS LETTERHEAD  
for the Free Steam Cost-Calculator —  
a ready-reference slide rule showing the  
comparative steam costs when using oil or  
coal as fuel.



# Cleaver-Brooks

## STEAM GENERATORS

When inquiring specify CP A4549 — see handy form pages 2-3

## Instruments

### Portable Circuit Tester Has 52 Voltage and Current Ranges

*Unit is portable — makes simultaneous  
measurements of A.C. voltage and current*

**Uses** — Designed especially for use in industrial, electric power, laboratory testing and analysis, this test set, Series 856-J, has wide application in the fields of railroad communications, power installations, electrical maintenance, electrical engineering, and manufacturing, radio as well as for use in school and university labs.

**Features** — Series 856-J affords the added advantage of making possible simultaneous measurements of A.C. current and voltage with independent readings on the separate meter dials. Accuracy is 3% on D.C., 3% on A.C. current, 5% on A.C. voltage.

**Description** — The 856-J, (One of the various Precision Circuit Testers which encompass a complete line of A.C.-D.C. test instruments) is a unit combination of the Precision Series 856 and Series "J". This portable combination provides an exceptionally wide selection of 52 A.C.-D.C. voltage and current ranges to meet the requirements of all the above-mentioned fields. The A.C. current unit incorporates an internal heavy-duty current transformer designed for operation on 25 cycles and higher. Two 4½" full vision meters are provided. The 856 meter has 50 microamperes full scale sensitivity and provides calibration at both 20,000 and 1,000 ohms-per-volt at the flip of a switch.

PRECISION APPARATUS CO., INC., Dept. CP, 92-27  
Horace Harding Blvd., Elmhurst, N. Y.

When inquiring specify CP A4550 — see handy form pages 2-3

★

### High Frequency Probe Has Input Capacity of 1/2 to 1 MMF

*Reduces effect in the loading and detuning of  
high frequency circuits*

**Uses** — A practical answer to the problem of measuring voltages in very high frequency circuits is offered in this high frequency probe.

**Features** — many probes may have an input of 5 micro-microfarads and the effect of such probes in the loading and detuning of very high frequency circuits may be rather great. In this new probe this effect is greatly reduced. Designed to meet the need for a radio frequency probe with an extremely low input capacity, this unit with an input capacity of ½ to 1 micro-microfarad, extends the range of measurements ten times, from 50 to 500 megacycles.

**Description** — The Model 29 High Frequency Probe, replacing the standard probe of the Model VM-27 Vacuum Tube Voltmeter, is adjusted accurately to one-tenth the sensitivity of the standard probe. Consequently, all voltage readings are exactly ten times the indicated values. Thus, with the new Model 29 Probe, the Model VM-27 Voltmeter has full scale ranges of 10, 30, 100, 300 and 1000 volts. No multiplier is required to measure voltages up to 1000 volts. Frequency range 0.5 to 500 megacycles.

ALFRED W. BARBER LABORATORIES, 34-14 Francis  
Lewis Blvd., Flushing, N. Y.

When inquiring specify CP A4551 — see handy form pages 2-3



## STEAM-JETS for Serving Vacuum Evaporators

Whenever low absolute pressures are needed in evaporators and vacuum pans, Steam-Jet Ejectors provide a simple, reliable method of evacuating non-condensibles from the system. Whether it

is milk evaporation, vitamin extraction, solvent recovery or one of the many other processes requiring a vacuum, Ingersoll-Rand engineers can recommend the ejector equipment that is best suited to every evaporator service.

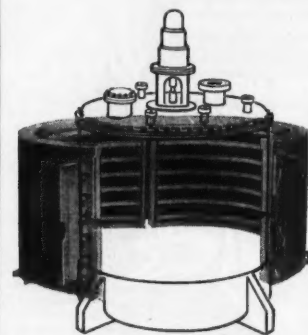
## Ingersoll-Rand

11 Broadway, New York 4, N. Y.

When inquiring specify CP A4552 — see handy form pages 2-3

## The Trend is to TRENT

### For Electrically Heated KETTLE JACKETS



Made with Patented "Folded-and-Formed" Heating Elements — famous for their long-life efficiency — no breakdowns. Far superior to contact heaters. Uniform heat — no localized hot spots — no internal connections — minimum carbonization. For continuous operation at 1850° F.

Write for Kettle Bulletin 72-T.

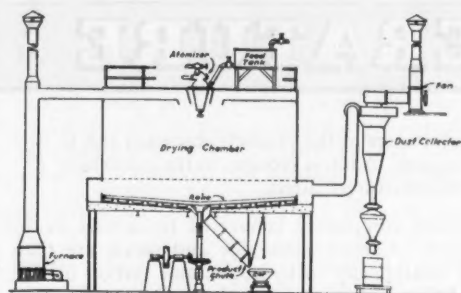
**TRENT** Electrically Heated Industrial Equipment  
**HAROLD E. TRENT COMPANY**  
FURNACES • OVENS • HEATING ELEMENTS  
LAB and SPECIAL EQUIPMENT • KETTLES

235 LEVERINGTON AVE.

PHILADELPHIA 27, PA.

When inquiring specify CP A4553 — see handy form pages 2-3





## "INSTANT DRYING"

### A Simplified, Low-Cost System for Drying Chemicals

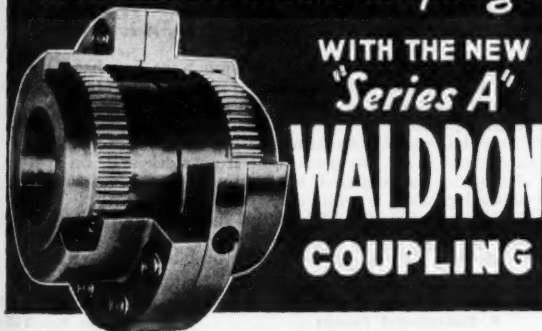
Real-life tests in industry have been demonstrating the advantages of the modern INSTANT DRYING unit. For instance, the manufacturer of a chemical widely used in industrial products brought it to the Instant Drying Laboratories for test. The results were astounding! Drying capacity was greatly expanded. The equipment was installed and the original unit has been in busy operation on a 24-hour schedule . . . with production even larger than the laboratory tests had shown! The special working features (patented) of INSTANT DRYING SYSTEMS are paying many dividends. This trouble-free and diligent worker demands only a minimum of labor and attention. Less power and a smaller connected load are required. Write to us on your drying problem. We shall answer your questions and send you detailed literature on the INSTANT DRYING unit.

**INSTANT DRYING CORP.** 101 Park Avenue  
New York 17

Testing and Research Laboratories at Poughkeepsie, N. Y.  
Engineering by CLARK, MACMULLEN & RILEY, INC., NEW YORK

When inquiring specify CP A4554—see handy form pages 2-3

Now you can use  
**SMALLER sized couplings**



WITH THE NEW  
**"Series A"**  
**WALDRON**  
**COUPLING**

Write for Copy of  
This Catalog 57



Its larger maximum bore permits use of smaller sizes for greater accuracy and economy. Requires less shaft extension. Provides neater, more compact job and retains all Waldron design refinements. Available in all popular types.

**JOHN WALDRON CORP.**  
Main Office and Works  
**New Brunswick, New Jersey**  
**COUPLINGS**

When inquiring specify CP A4555—see handy form pages 2-3

MAY - JUNE, 1946

## Instruments

### Viscometer Measures Low Viscosity Liquids

Has a 32-inch capillary

*Uses* — Viscosity measurement of low viscosity liquids is accomplished with this viscometer.

*Features* — The design provides a 32-inch helical capillary with only the normal head, thus increasing the time of fall ten times that of the usual viscosity pipette. It is not necessary to plot a curve of constants with various liquids since its constant remains invariable over a wide range. *Description* — Capillary is of helical shape, surrounding a cylinder in which the sample is introduced. Stopcocks permit drawing the liquid up through the capillary to a mark, then permitting it to fall through the capillary. The viscometer is readily calibrated and tests show that its constant is very uniform with liquids of low viscosity.

**FISHER SCIENTIFIC CO., Dept. CP, 717 Forbes St., Pittsburgh 19, Penna.**

When inquiring specify CP A4556—see handy form pages 2-3

### Vacuum Tube Voltmeter

10 calibrated ranges; readings 1-300 millivolts

*Uses* — This new high-sensitivity vacuum-tube voltmeter is designed especially for laboratory and industrial electronic testing.

*Features* — The instrument has ten calibrated voltage ranges, the lowest being 10 millivolts full scale for readings as low as 1 millivolt, and the highest 300 volts. The complete rating is: 0/0.010/0.03/0.1/0.3/1/3/10/30/100/300 volts so that a wide range of measurements can be made without reading below one-third of the full scale value.

*Description* — For all frequencies between 15 cycles and 500 kc the accuracy is  $\pm 3$  per cent; and between 500 kc and 1 megacycle it is 5 percent. The instrument can be used with reasonable accuracy between 10 to 15 cycles, and 1 to 1.5 megacycles. The instrument is also graduated in decibels and covers a range of minus 65 to plus 45 from a reference level of 6 milliwatts into 500 ohms. The input resistance is 2 megohms. A ten-position pushbutton switch mounted on the front panel allows any working range to be selected without passing through intermediate ranges.

The vacuum-tube voltmeter is contained in an aluminum case and total weight is 13 pounds.

**GENERAL ELECTRIC CO., Dept. CP, Schenectady 5, N. Y.**

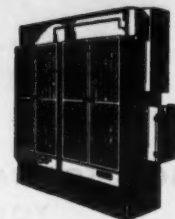
When inquiring specify CP A4557—see handy form pages 2-3

### How To Get More Product Information

To make it convenient for readers to locate information in **CHEMICAL PREVIEW** there is . . . on pages 132 and 133 . . . a complete directory of all products that are featured in editorial articles or described in the advertisements in this issue; On page 134 you will find a list of the advertisers whose products are described in this issue; And to make it easy for you to secure additional information quickly there is a handy request slip inserted between pages 2 and 3.

**AAF** offers  
a complete  
line of  
*Electronic*  
**AIR FILTERS**

### Self-Cleaning *Electro*·MATIC



The completely automatic operation of this Electronic filter answers both the problem of removing the dust and smoke from the air, as well as the secondary problem of disposing of collected material. A continuous curtain of collector plates passes intermittently down the front of the filter and thru a viscous cleaning bath at the bottom. Send for Bulletin No. 250.

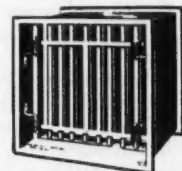


### The Cleanable *Electro*·CELL

Sectional-type Electronic air filter with removable collector plate assemblies. This feature eliminates need for providing water, oil, compressed air and sewer connections at each installation. Spare collector plate assemblies can be set

into place and service continued uninterrupted while dirty plates are being cleaned. Send for Bulletin No. 252.

### Renewable Media *Electro*·AIRMAT



This is the only Electronic dry filter on the market. Uses sheets of "charged" airmat paper which are renewed manually or by a mechanical loader. Combines mechanical filtration with Electronic

cleaning providing continuous service even thru a period of power failure should it occur. Send for Bulletin No. 253.

Send for your copy of this  
interesting and helpful booklet.  
Address Department 106.



**AMERICAN AIR FILTER CO., INC.**  
INCORPORATED  
106 CENTRAL AVE. LOUISVILLE, KENTUCKY  
IN CANADA, DARLING BROTHERS, LIMITED, MONTREAL, P.Q.

When inquiring specify CP A4558—see handy form pages 2-3



## HOW TO "TAKE THE HEAT OFF" YOUR MOTOR MAINTENANCE PROBLEMS

Excessive time and dollar losses are being avoided in every industry—by specifying *Fiberglas\* High-Safety-Factor Electrical Insulation* in new motors and for rewinds.

When scores of plants were operating at full-time war production, *Fiberglas Insulation Materials* provided "extra" protection to overcome conditions which caused most motor burnouts and failures—heat, moisture, corrosive vapors or acids, overload and the human element. One company was operating twenty-five variable-speed motors which were subjected to heavy overloads under conditions of high ambient heat, high humidity. The average life of these motors, ranging from 2½ to 10-hp., had been about four weeks. *Fiberglas-base Insulation Materials* were specified—the service life of these motors was lengthened many times—and "the heat was off" the motor maintenance problem in this plant.

Why not try the remedy that has been so successful for other concerns? Get complete information about *Fiberglas Electrical Insulation Materials*. Write for your copy of the new catalog and ask for the names of the distributors serving your locality. *Owens-Corning Fiberglas Corporation, 1959 Nicholas Building, Toledo 1, Ohio. In Canada, Fiberglas Canada Ltd., Oshawa, Ont.*

ASK FOR FIBERGLAS—IN  
YOUR NEXT MOTOR—AND ON  
YOUR NEXT REWIND.

\*T. M. Reg. U. S. Pat. Off

# FIBERGLAS

ELECTRICAL INSULATION MATERIALS

Other *Fiberglas* Products: Thermal and Acoustical Insulations  
Dust-Stop® Air Filters • Yarns, Cloths, Mats and Basic Fibers

When inquiring specify CP A4559 — see handy form pages 2-3



## NEW LITERATURE ★

The following literature has been issued recently by manufacturers of the products discussed and is available to chemical process manufacturing executives on request. Address requests to the publishers by using handy request form, pages 2-3, or write to the manufacturers direct.

**"Soap In Industry" — A Practical Treatise With Various Formulae, Their Preparation and Uses** "Soap In Industry" (Georgia Leffingwell, Ph. D. and Milton Lesser, B. S.) is a practical treatise which provides an indicative rather than an exhaustive survey of the industrial uses of soluble soaps, i. e., potash and soda soaps as contrasted with heavy metal soaps, with particular emphasis on the growing place of these soap uses in our industry. The book contains twenty-two chapters covering a wide range of industries. Most of these are of direct interest to the process industries. These include the chapter on cosmetics which discusses the place of soap in a variety of products and in a number of instances suggests formulae. The latter being for a hair cream, almond cream, brushless shaving cream, skin milk, facial cream, etc. The chapter on inks and ink making contains references of importance in connection with numerous kinds, as for example stencil duplicating inks, wallpaper inks, high speed printing "news" inks, as well as crayons for hand drawing on metal plates. The chapter on soaps and their importance in insecticides points out that while quality of soap is not so important in this field the advantage of consistent and reproducible behavior makes it well worthwhile to use a definite grade and type. As in the various other chapters a number of formulae are included. Among the other industries in which soap applications are an important factor and which are discussed in this volume are: Paints, paper, plastics, milk production, polishes and textiles. Price is \$4.00. Any remittances should be made direct to publishers — name and address below. Request for additional information concerning this volume may, however, be indicated on request slip.

CHEMICAL PUBLISHING CO., Dept. CP, 26 Court St., Brooklyn, N. Y.

When inquiring specify CP A4560 — see handy form pages 2-3

★

### Hydrocarbon-steam Process for Production of Hydrogen of Extremely High Purity

Because of the increasing use of hydrogen for many industrial purposes, a new thirty-two page booklet on this subject has just been issued to provide users essential information in determining methods most suitable to individual requirements. The booklet features numerous pictures, flow diagrams and tables. Included is a description of this organization's new Hygirtol plant for the production of high purity oxygen by reacting hydrocarbons with steam. The booklet's comprehensive coverage is indicated by its treatment of the following subjects: Hydrogen, Commercial Methods of Production, Water Gas Process, Steam-Iron Process, Methanol-steam Process, Electrolytic Process, Hydro-carbon-steam Process, Carbon-dioxide Removal by Cuprous Salt Solutions, Carbon Dioxide Removal by Water Scrubbing, Dehydration, Deoxidation, Liquefaction, Special Gas Mixtures, Hydrogen Catalysts, Analysis of Hydrogen, Properties of Hydrogen and additional related data.

In the hydro-carbon steam process referred to, pure hydrogen is produced by reacting hydrocarbons with steam over catalysts at elevated temperatures (about 1500° F.) under conditions such that the hydrocarbons

are almost completely converted to carbon oxides and hydrogen. Carbon monoxide and steam are then converted catalytically to hydrogen and carbon dioxide, the latter being removed from the hydrogen by scrubbing with amine solutions by the Girbotol Process. By successive purification steps, hydrogen of extremely high purity (99.97%) can be obtained.

In a typical Higirol high-purity hydrogen manufacturing plant the hydrocarbon-steam process is combined with a suitable feed preparation step and purification process to form an integrated unit for the continuous production of hydrogen gas of quality equivalent to or better than commercial electrolytic hydrogen. A typical plant could be one in which commercial propane, such as is produced as a by-product in oil refining operations, is used as the raw material, and in which three stages of carbon monoxide conversion are utilized to attain the required hydrogen purity. Actual operating experience with Hygirtol Hydrogen plants indicates the following advantages: (1) The finished hydrogen is produced at low cost. (2) Purity. (3) The raw materials are available at reasonable cost and are easily handled. (4) The operation is continuous, and changes in production rates from 0 to 120 per cent of rated capacity can be made rapidly and easily. (5) All operations are clean and no

## WHAT are your Acid-handling needs

### Chemical Stoneware Offers Many Advantages

Investigate acid-proof chemical stoneware for handling corrosive liquids — particularly for vessels of large size and complicated shapes to which other materials are not usually suited.

General Ceramics can furnish many of the acid-handling stoneware items you need right from stock and, on special items, is prepared to function from blueprint to finished product, to your individual requirements.

Check over the titles of bulletins listed at the right. Any that apply to your problems will be sent to you without obligation. Write for them on your business letterhead.

#### ASK FOR THESE BULLETINS BY NUMBER

- Centrifugal Pumps ..... Bulletin No. 211
- Exhaust Fans and Blowers ..... Bulletin No. RA
- Plugcocks and Valves ..... Bulletin No. 131
- Filtration Equipment ..... Bulletin No. 271
- Tanks, Jars, Pots and  
Storage Equipment ..... Bulletin No. 111
- Towers ..... Bulletin No. HA

GENERAL CERAMICS and  
SEATITE CORP.  
Chemical Equipment Division  
Kearny, New Jersey



BUFFALO  
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PORTLAND, ORE.  
SAN FRANCISCO  
HOUSTON  
TORONTO

When inquiring specify CP A4561 — see handy form pages 2-3



## New Literature

dust, dirt, cinders, or smoke are produced. (6) Only one per shift is required to operate the plant. (7) The plant can be either outdoors or indoors. (8) As much as thirty-five pounds of pure carbon dioxide is produced as a by-product for each thousand feet of hydrogen manufactured. Copies of this booklet on request.

THE GIRDLER CORP. (Gas Process Div.), Dept. CP, Louisville, Ky.

When inquiring specify CP A4562 — see handy form pages 2-3

★

### Code for the Prevention of Dust Explosions In the Plastics Industry

An approved code for prevention of dust explosions in the Plastics Industry is presented in a recently published bulletin (price 25c). The dusts of most of the plastics are explosive when in suspension in the air, and special precautions are necessary for the avoidance of dust explosions wherever dust is present, either in connection with the manufacture and handling of powders produced from molding or from grinding or buffing operations. The contents of the pamphlet includes a section of definitions covering all the important words and terms used in the code. The various subjects include plant arrangement, building construction, communication, explosion preventive measures, electrical equipment, minimizing the extent of explosions in dry powder processing and handling equipment, housekeeping and fire extinguishing systems. The pamphlet gives detailed provisions for all common types of plastic dusts with data indicating the relative susceptibility to dust explosions on the part of dusts from various plastics. Among the recommended precautions against explosions, the prevention of unnecessary accumulations of dust, elimination of possible sources of ignition, provision for explosion venting of both buildings and equipment, special types of dust collecting systems. Remittance for this pamphlet should be sent direct to organization named below. The code is approved by the American Standard Assn.

NATIONAL FIRE PROTECTION ASSN., Dept. CP, 60 Battery-march St., Boston 10, Mass.

When inquiring specify CP A4563 — see handy form pages 2-3

★

### Pale, High-melting Point Resin for Use in Ester Gums, Spirit Varnishes, Adhesives

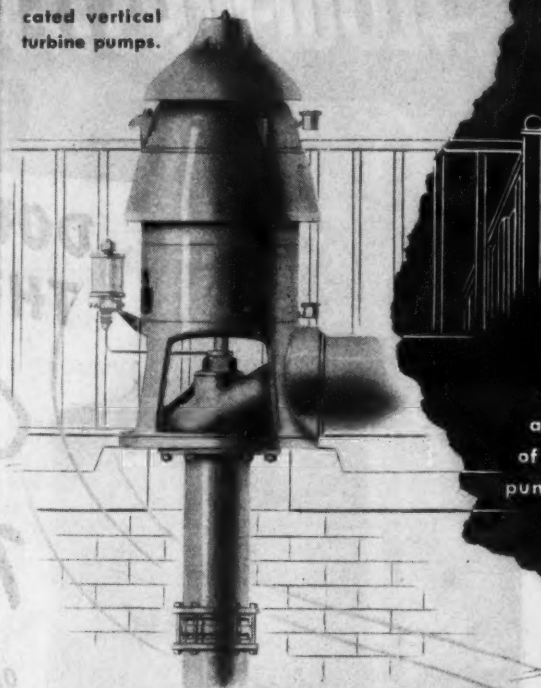
"Poly-pale" resin, which is finding wide use in the paint and varnish industry is the subject of a technical booklet just issued. "Poly-pale" resin which is light in color and has a high melting point is used in the production of ester gums, gloss oils, spirit varnishes and adhesives and in modified maleate and phenolic resins; also paper coatings, linoleum, etc. It is a thermoplastic resin obtained by treating natural rosin to cause about 1/3 of the rosin acids present, such as abietic and primaric, to unit as polymers. The remaining 2/3 of the rosin constituents are unchanged. It is soluble in a wide range of solvents. Its low tendency to oxidize is in marked contrast to that of the natural rosins from which it is made. It shows no tendency to crystallize, and is essentially free of metals. Melting point ranges from 98-100 degrees C. The booklet describes in detail physical and chemical properties, color grades. Various applications are discussed and in addition to those pre-solder flux and others.

HERCULES POWDER CO., Dept. CP, Wilmington, Delaware.

When inquiring specify CP A4564 — see handy form pages 2-3

MAY - JUNE, 1946

POMONA:  
Water-lubri-  
cated vertical  
turbine pumps.



**THERE'S NO GUESSWORK** required when it comes to choosing the best vertical turbine pump for you. For the names of Fairbanks-Morse and Pomona identify every type and size of vertical turbine found in industry today; and these names stand unique in the pump-building world as two of the oldest, most widely respected and "depended upon" pump builders.

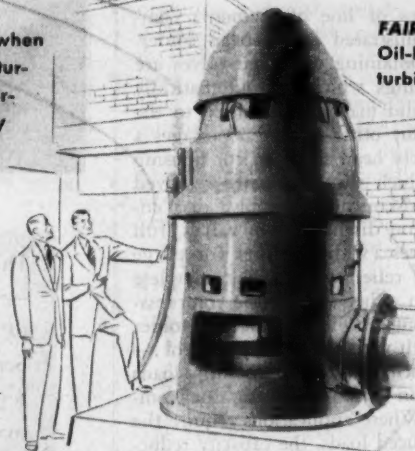


## How can you tell a good Pump?

After all, what is the best way to tell a good pump? While you can compare efficiency curves, high efficiency in the test-room is no assurance of stamina on the job. Nor can performance data prove that you're getting the pump that's best for your specific liquid-moving work. The name alone tells this story!

Who makes it? On a good pump the name plate symbolizes manufacturing facilities, years of research and testing, trained men and intimate knowledge of all pumping requirements that back an ability to pump for you for less, through the years.

FAIRBANKS-MORSE:  
Oil-lubricated vertical  
turbine pumps.



**GOOD PUMPS?** Yes, and there are many who know these as the best of the vertical turbines—thousands and thousands of users who consistently report "maintenance costs nil, power costs extremely low."

**REMEMBER THESE NAMES** and all that is behind them when faced with a pumping problem. Then see your Pomona dealer or visit your Fairbanks-Morse branch office—the "big store" for all good pumps.

# FAIRBANKS-MORSE



## A name worth remembering

DIESEL LOCOMOTIVES • DIESEL ENGINES • MAGNETOS • GENERATORS • MOTORS • PUMPS  
SCALES • STOKERS • RAILROAD MOTOR CARS and STANDPIPES • FARM EQUIPMENT

When inquiring specify CP A4565 . . . see information request blank, pgs. 2-3

### U. S. A. Grown and Distilled Essential Oils and Related Products

A twelve page booklet lists and describes U. S. A. grown and distilled essential oils and related products. The foreword of the booklet discusses the former dependence of users on foreign sources of supply. It refers to developments achieved since the outbreak of the war and cites Oils, Lemongrass, Dill Weed, Sassafras and other vital oils that are now made in this country. Some of the oils listed include: "Sweet Almond Oil, USP; Oil Bitter Almond, Artificial; Annol (replacement for oil of anise in technical preparations where odor of anise is desirable); Oil of Sweet Birch, USP; Northern and Southern; Oil Carrot Seed; Oil Celery Seed; Oil Garlic Natural; Oil Grapefruit Expressed; Imitation Horseradish Oil; Oil Mustard, Artificial USP; "Or-o-tyme" (replacement for Oil White & Red Thyme) Oil Parsley Seed and numerous others. In addition to this booklet there is also available a catalog with prices of essential oils and concentrated flavors. Both of these are available on request.

MAGNUS, MABEE & REYNARD, INC., Dept. CP, 16 Desbrosses St., New York 13, N. Y.

When inquiring specify CP A4566 — see handy form pages 2-3

★

### Enclosed Safety Head Ammonia Compressors

Design and operating features of line of ammonia compressors are described and illustrated in six page folder. Safety type cylinder heads, containing discharge valves are secured by heavy helical springs which lift automatically if liquid ammonia, oil, or solid matter is admitted to the cylinders. In addition to many other design advantages a cross-section photo shows safety head arranged for housing multiple discharge valves which may be easily removed for repair or replacement. Manifold assembly, cast en-bloc, includes main suction and discharge-stop valves, full size by-pass and starting valves (with openings for purge valves) and a high pressure relief valve. The complete manifold may be mounted on either side of the compressor to fit individual requirements. One page of this folder is devoted to compressors with variable capacity control — a simple solution to balancing variable cooling loads throughout the day or season while operating the compressor at uniform speeds. Where applications require the compressor to operate on reduced loads, the capacity reduction feature allows compressor capacity to be reduced with a proportional saving in both power and water consumption. Booster compressors are also shown. Copies of this folder on "Baker Ammonia Compressors" on request.

BAKER ICE MACHINE CO., Dept. CP, 16th & Evans, Omaha, Neb.

When inquiring specify CP A4567 — see handy form pages 2-3

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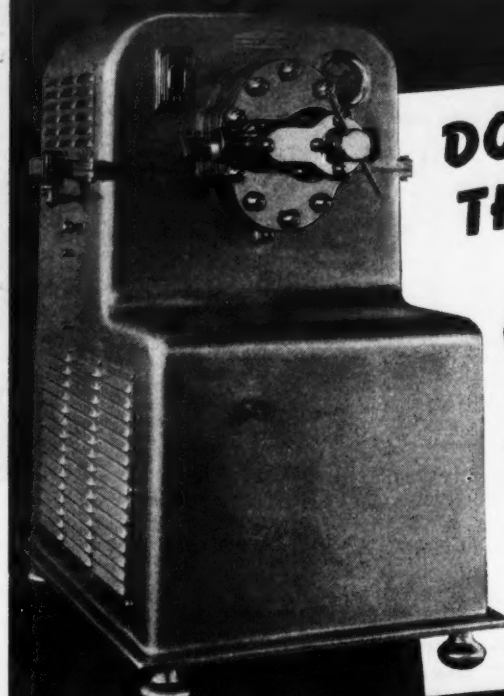
### Stainless Steel Fabrication

A new file-folder bulletin on stainless steel fabrication and engineering covers a wide variety of fabricating problems. Pictorial displays are shown. A handy table of Standard Type numbers and analyses of stainless steels from type No. 301 to 302 steels is shown. Copies of this folder on request.

ALLOY MANUFACTURING COMPANY, INC., Dept. CP, 30th & Brereton Ave., Pittsburgh, Penna.

When inquiring specify CP A4568 — see handy form pages 2-3

## FLOW-MASTER HOMOGENIZATION



FLOW-MASTER HOMOGENIZER

**DOES  
THESE  
4  
Things**  
IN ONE  
OPERATION,  
AT LOW  
PRESSURE!

- processes incompatible components in stabilized suspension in a liquid medium.
- suspends and stabilizes solids in a colloidal substance.
- reduces oils and fats to minute globules in a vehicle and disperses them so that they form emulsions.
- suspends minerals, pigments and the like in a vehicle.

This is what FLOW-MASTER Homogenization does — by means of a series of consecutive actions, each of which brings your product one step nearer to perfection. The FLOW-MASTER, patented and revolutionary in design, enables you to homogenize many products by batch or continuous method. It sim-

plifies production because it does the work of several special-purpose machines. It is so simple that anyone can operate it. It is so reliable that any product once perfected can be duplicated with precision time after time. It usually cuts manufacturing costs substantially. Its first cost is surprisingly low.

## The FLOW-MASTER KOM-BI-NATOR

The Kom-bi-nator performs the function of 6 conventional special-purpose machines. You can combine any or all of these processes into a single, continuous operation —

**Grinding, Mixing, Stabilizing, Blending, Bleaching, Emulsifying, Homogenizing.**

The Kom-bi-nator is self-contained, requires no accessory pump, has no pistons. It will grind many solids in a liquid medium to as small as 1 micron. It will emulsify many incompatible materials. It will mix and combine various materials into a homogeneous mass. It improves taste, texture and sales potential by providing uniform dispersal, and does it at low manufacturing cost. Write for Catalog No. 10.



FLOW-MASTER KOM-BI-NATOR

**MARCO COMPANY Inc.**

When inquiring specify CP A4569 . . . see information request blank, pgs. 2-3



# FLOW-MASTER PUMPS

HAVE THESE

12  
Features

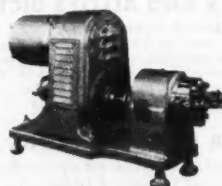
- pump many difficult materials
- transfer, meter or proportion
- maintain volumetric efficiency
- positive displacement
- automatically compensate for normal wear
- maintain high vacuum
- hydraulically balanced rotors
- work on high or low pressure
- automatic sanitary shaft seals  
on Commander, Challenger and De Luxe Models
- minimum hazard of seizing or galling
- stainless, sanitary, easy to clean
- proved in years of service

The new FLOW-MASTER Pumps were specially designed to meet the needs of chemical processors for these 12 features. Standard models are available in capacity ranges to 4000 g.p.h. against head pressures up to 750 psi. Pumps to handle higher capacity ranges can be custom built. For details, engineering data and prices, send for a copy of the new FLOW-MASTER Pump Catalog No. 25.

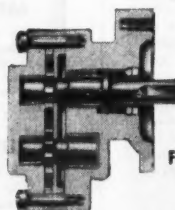
Catalogs describing the entire FLOW-MASTER Line—Homogenizers, Kom-bi-nators and Pumps—are yours for the asking. Write for them, and let us help you with your chemical processing problems. Address Dept. B-4.



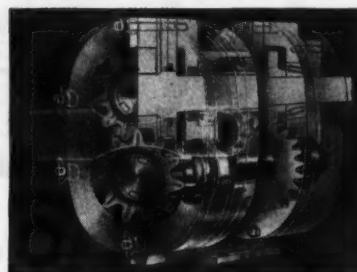
FLOW-MASTER COMMANDER  
Capacity 500—4000 G.P.H.



FLOW-MASTER Pump  
with speed reducer



FLOW-MASTER VICTOR  
for a built-in pump  
5—300 G.P.H.  
REQUIRES NO LUBRICATION



FLOW-MASTER "DE LUXE" Phantom View  
500—4000 G.P.H.



Ward and Church Sts., Wilmington 50, Del.

When inquiring specify CP A4570 . . . see information request blank, pgs. 2-3

MAY - JUNE, 1946

## New Literature

### Guide for Pipe Users

Applications of light weight pipe in diameters from 4 to 30 inches are contained in this well illustrated 54-page bulletin. Installations showing the use of this pipe in the petroleum, power plant, paper mill, materials handling, ventilation and sewage disposal fields are included. Test data on internal and external hydrostatic pressures; crushing, longitudinal tension and compression tests are pointed out. Friction losses are outlined, with tabular data on the values of the friction factor. A new type coupling is also described, which the manufacturer states, will save time and labor. A registered copy may be secured by writing the company.

NAYLOR PIPE CO., Dept. CP, 1230 E. 92nd St., Chicago 19, Ill.

When inquiring specify CP A4571—see handy form pages 2-3

★

### Heat Exchanger and Condenser Manual

Four standard types of shell and tube condensers and heat exchangers are shown in a 44-page factual data book. In the applications covered are descriptions of condensers, heat exchangers, heaters, evaporators, coolers and reactors. An informative chart tells of industry or process steps where this equipment is used. Diagrammatic layouts show a wide variety of representative arrangements possible for a number of problems. A detailed story of installation, operation and maintenance data gives important tips to users. Selection and performance data section is designed to allow approximate selections for survey and estimate work. Basic formulae, charts and tables in the performance and design section of this manual are helpful. A number of pages are devoted to theory of heat transfer, temperature difference, thermal design calculations and performance. The technical data section contains tubular design factors, helpful conversion factors and physical properties of miscellaneous compounds. Process engineers who want this manual may obtain it on request.

THE PFAUDLER CO., Dept. CP, Rochester 4, N. Y.

When inquiring specify CP A4572—see handy form pages 2-3

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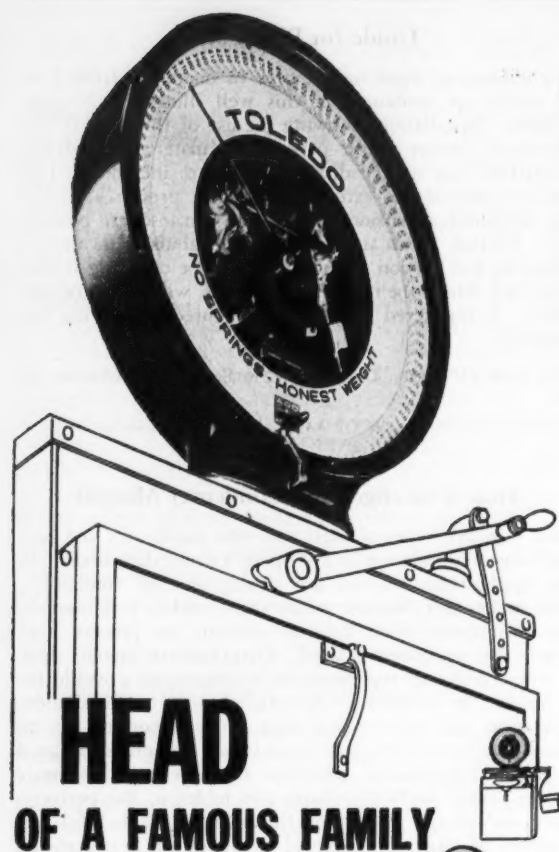
### Benefits and Economies of Soft Water

The benefits and economies of soft water are presented in new bulletin 607, which describes water softeners and other water conditioning equipment. Of special interest is the description of a water softener of "Double Check Design," which, in comparison with a water softener of conventional design, accommodates as much as 44% more water softener zeolite. Since it's the zeolite that softens water, this additional zeolite means a comparable increase in the amount of soft water delivered. This added soft water output is significant, in view of the fact that far too often there is not enough soft water for all the uses to which it should profitably be put. These various uses are covered in the bulletin. Other features of the water softener covered in this bulletin include prevention of zeolite loss, less salt and wash water used and less space required.

One section of the bulletin tells how to modernize existing water softeners. Another gives data on treating water correctly for boilers, lines, auxiliaries and processing. A copy of this new bulletin will be sent on request.

ELGIN SOFTENER CORP., Dept. CP, Elgin, Ill.

When inquiring specify CP A4573—see handy form pages 2-3



Distinctive, the World over, is the head of a Toledo Scale. In factories, dairies, mines or mills—wherever seen it means—*Accurate Weight*. For inside the Toledo head is that ingenious Toledo full-floating, double-pendulum device which balances weight against weight to give accurate weighings with split-second speed.

Today it is true, as it has been for more than thirty years, that "Toledo on your scale head means **ACCURACY** in your weighings."

Watch for this head—you'll see it where **Accurate Weights** are wanted.

Toledo Scale Co., Toledo, Ohio.

**TOLEDO**  
HEADQUARTERS FOR SCALES

When inquiring specify CP A4574—see handy form pages 2-3

## New Literature

### High Vacuum Pumps for Vacuum Processing

A new 24-page, 2-color bulletin tells an interesting story of design and operation of high vacuum pumps. Uses of this equipment are described for a wide variety of applications. Diagrammatic drawings and sectional views of single stage and compound pumps explain in detail operating principles. Valuable data in the form of charts shows displacement, speeds, horsepower requirements and other information. Formulae for selecting vacuum pump size are included with typical examples shown to aid in the selection of this equipment. Copies of Bulletin V-45 are available on request.

KINNEY MANUFACTURING CO., Dept. CP, Washington St., Boston 30, Mass.

When inquiring specify CP A4575—see handy form pages 2-3

### Weldvalves in Gate, Globe and Angle Design

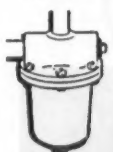
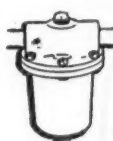
A line of new steel weldvalves for 600-lb. to 2500-lb. standards is announced in a bulletin just issued. The manufacturer states that these designs eliminate or neutralize valve joints, seat ring joints, bonnet joints and improve packing gland joints. It is also stated in the catalog that the weldvalves effect savings in weight, space, parts, maintenance and lagging expense; and provide accurate alignment. Copies of this new weldvalve catalog are available on request.

MANNING, MAXWELL & MOORE, INC., Dept. CP, Bridgeport 2, Conn.

When inquiring specify CP A4576—see handy form pages 2-3



### Come out of your "jungle" to SIMPLIFIED piping



No longer is "jungle piping" the only way to install an inverted bucket steam trap. Anderson Super-Silvertop gives the economy of low-cost simplified piping, orderly and clean-cut.

This engineered steam trap gives you the choice of BOTH elbow and straight-in-line connections using only one fitting, a nipple. You save as much as six fittings and 40 minutes of installation time per trap. Yes, and all this without resorting to split gaskets or cored passages.

Interested in these savings? Then write today for complete information.

**THE V. D. ANDERSON CO.**  
1954 West 96th Street • Cleveland 2, Ohio

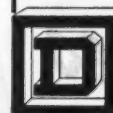
**SUPER-SILVERTOP  
STEAM TRAPS**

When inquiring specify CP A4577—see handy form pages 2-3



### PRESSURE, FLOAT & VACUUM SWITCHES

• **SQUARE D** offers a wide range of switches, designed and built for practically all sizes of water pumps, condensate pumps, vacuum pumps, and air compressors. You'll find this catalog a valuable source of reference. Send for your free copy today. Address Regulator Division, Square D Company, 6060 Rivard St., Detroit 11, Mich.



**SQUARE D COMPANY**

DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A4578—see handy form pages 2-3



Here is a boon to engineers looking for a clear understanding and methods of applications of adsorption phenomena to industrial projects. All adsorption problems are treated with great thoroughness and lucidity.  
400 pages Illustrated 1945 \$8.50

### COMMERCIAL WAXES

Edited by H. Bennett  
Many leading individuals and firms have contributed helpful data and articles to this comprehensive study of all classes of waxes which, in modern times, find extensive use in many industries.  
583 pages 1944 \$11.00

### METALS AND ALLOYS DICTIONARY

by M. Merlub-Sobel, Ph.D.  
Contains over 10,000 useful metallurgical terms as well as the composition, properties, and uses of all the important commercial alloys. Here is a shortcut to a wealth of information on metals and alloys.  
238 pages 1944 \$4.50

### RUBBER IN ENGINEERING

A Symposium based on research by the Imperial Chemical Industries, Ltd.  
Designed to interest a wide variety of readers. Its main purpose is to furnish engineers with a general survey of the information available on the fundamental properties of rubber. Complete with graphs and tables.  
304 pages Illustrated 1946 \$5.50

**CHEMICAL PUBLISHING CO., INC.**

26 COURT STREET DEPT. 7 BROOKLYN 2, N. Y.

When inquiring specify CP A4579—see handy form pages 2-3



### Thermal Conductivity Cells for Gas Analysis

Constructional details of thermal conductivity cells are described in this technical bulletin. Effects of ambient temperature change, current and voltage variation; sensitivity, time lag, flow rate sensitivity, filament resistance and other factors which affect performance are shown. Design, construction and performance of a single pass cell, where the measurement of a single gas in air is a consideration, are pointed out. Typical uses for this cell are for the analysis of Carbon Dioxide, Hydrogen, Sulphur Dioxide, Helium, Argon and Ammonia. A description of the measurement of one gas to any other one gas for determination of gas purity is also discussed. This may be used in determining oxygen contamination of Helium, Oxygen contamination of Argon, N-Butane in Iso-Butane, and N-Pentane in Iso-Pentane. Where a single gas can be absorbed from a complex mixture; all gases varying, a double pass cell is suggested. A typical application is indicated if CO<sub>2</sub> is absorbed from flue gases, and the resultant readings would be comparable to those of an orsat. A table of relative conductivities of a wide variety of gases is incorporated in the information. Ask for Technical Bulletin No. 1134.

DAVIS EMERGENCY EQUIPMENT CO., Dept. CP, Newark, N. J.

When inquiring specify CP A4580—see handy form pages 2-3

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### Exchanger-Fan Combination Cools Fluids Without the Use of Water

"Fin-fan Air-cooled Heat Exchanger" is pictured and described in a new bulletin. This equipment is a joint development of two organizations (Griscom-Russell Co. and the Fluor Corp., Ltd.). This exchanger is a complete package type unit combining the heat transfer surface which effects heat exchange together with the air circulation equipment in proper mechanical and structural relationship to each other. More than twenty advantages of this exchanger for condensing and cooling fluids without the use of water are outlined and typical applications are listed to show the wide adaptability of the unit. Illustrations of installations show how these exchangers are adapted to large or small heat transfer requirements. The K-fin air-cooled section is described in detail. Bulletin 1230.

GRISCOM-RUSSELL CO., Dept. CP, 285 Madison Ave., New York, N. Y.

When inquiring specify CP A4581—see handy form pages 2-3

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### Testing Petroleum Products

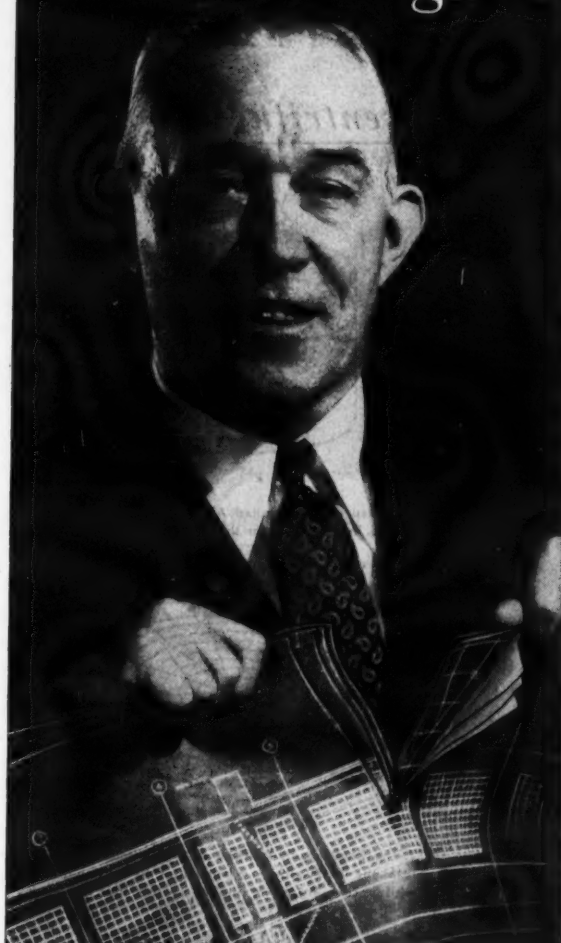
This catalog lists a line of A.S.T.M. and A.P.I. hydrometers and thermometers, together with similar instruments for miscellaneous testing and general laboratory use. The closed tester and Saybolt Thermostatic Viscosimeter are two of the instruments described in making principle tests of petroleum products. Complete descriptions are included of all instruments. Useful conversion tables for temperature and specific gravity as well as an official guide to principle tests of petroleum products are incorporated. Copies of catalog 699-G are available on request.

C. J. TAGLIABUE DIVISION, PORTABLE PRODUCTS CORP., Dept. CP, Brooklyn, N. Y.

When inquiring specify CP A4582—see handy form pages 2-3

MAY - JUNE, 1946

# "I tore up our new warehouse plans when an A.T.C. Specialist gave us 50% more FREE Storage Space



...AND CUT OUR HANDLING COSTS 30% IN THE BARGAIN!"

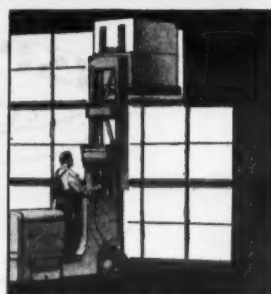
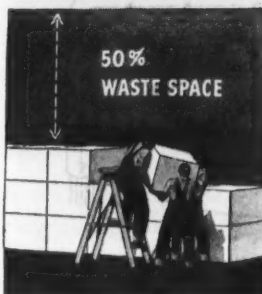
Yes, many a plant owner has saved himself the cost of a new warehouse because he let an A.T.C. material handling Specialist make a survey of his material handling costs.

Manual methods of storing raw and finished products often waste as much as 50% storage space. In the diagram to the left, see how much free storage space you can add to your present plant's capacity—how you take the work out of the job for your help, release more workers for more productive work.

An A.T.C. Specialist will show you how this can be done by efficient movement of your materials on Automatic Electric Trucks from receipt of raw materials through each successive handling procedure to storage and final shipment. These trucks are time-tested, brawny giants of electric power that lift, move and stack 1 to 30 tons with simple one-man operation.

They move through narrow aisles, turn sharp corners, go up and down grades whenever necessary. They speed up production, cut overall handling costs 30% to 60%, lighten labor's load.

Let an A.T.C. Specialist tell you what your handling costs are—what you can save with Automatic Fork Trucks. No obligation. Send coupon.



#### AUTOMATIC TRANSPORTATION COMPANY

41 W. 87th Street, Dept. E, Chicago 20, Ill.  
Please mail me, without cost or obligation, complete facts about AUTOMATIC FORK TRUCKS.

( ) Have an A.T.C. Material Handling Specialist call.

Company Name.....

By.....Position.....

Street Address.....

City.....State.....

When inquiring specify CP A4583 . . . see information request blank, pgs. 2-3

## Photocopy Equipment Speeds Solutions of Reconversion & Production Problems

An eight page illustrated bulletin shows in an interesting fashion how photocopy equipment expedites the solution of numerous postwar problems. The convenience and easy-reading features of photocopy prints are pointed out as is the advantage of prints produced in sheets cut to the exact size of tracing — not time lost in trimming. Also it is easy to make additions to photocopy prints that are quickly and accurately read. The compact design of modern photocopy equipment is also emphasized. The equipment pictured and for which general specifications are listed includes: Volumatic printer-developer which requires only one operator; unit for high speed roll stock production of prints; "Copyflex" printer and developer assembled in handy portable unit; also a smaller capacity unit (No. 41) for installation where large capacity machines are not needed for the work involved. Copies of "What's Your Postwar Problem" will be sent to all interested in this new photocopy equipment.

CHARLES BRUNING CO., Dept. CP, Chicago 41, Ill.

When inquiring specify CP A4585 — see handy form pages 2-3

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## Facts on Corrosion-Resistant Masonry

A 52-page manual contains helpful facts and suggestions pertaining to materials and construction methods for corrosion-resistant masonry. Nine types of cement are shown with a description of characteristics and recommended general uses. Properties of these products are listed in table form. Chemical resistance data for a wide variety of materials are shown. Information on "How to Use" these corrosion-resistant cements is detailed. Factors to look for in an acid brick are listed which should be helpful to anyone using acid-proof brick. Tables of sizes of standard shapes, circle brick, special shapes for tank and floor construction are informative. Many of the sketches shown in the construction section should be of value to both design and construction engineers. Impervious membranes, installed between masonry and the structural shell, are discussed in detail. These include Tygon, Rubber, Resilon, Lead, Reinforced Asphaltic Materials, and Corrosion-Resistant Paint. The random construction notes section offers additional facts that are helpful. A copy of "Corrosion-Resistant Material and Construction Manual" may be had on request.

U. S. STONEWARE CO., Dept. CP, Akron 9, Ohio.

When inquiring specify CP A4586 — see handy form pages 2-3

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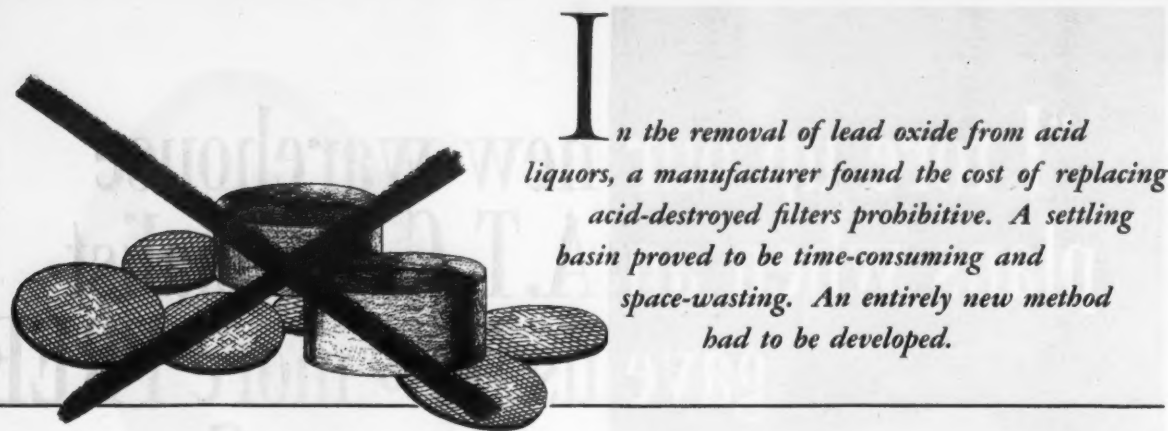
## Continuous Blowdown

A simple and non-technical treatment of continuous blowdown is contained in an article and catalog now available. A discussion of boiler water and concentration gives some elementary facts. While continuous blowdown is known to many, the comparison of continuous blowdown versus intermittent blowdown should be of interest to many. Service and valve design requirements are described for continuous blowdown service. A description of a continuous boiler blowdown assembly tells how the equipment functions. Copies of the article and catalog are available on request.

STRONG, CARLISLE AND HAMMOND CO., Dept. CP, 1392-1394 W. Third St., Cleveland 13, Ohio.

When inquiring specify CP A4587 — see handy form pages 2-3

CHEMICAL PREVIEW



In the removal of lead oxide from acid liquors, a manufacturer found the cost of replacing acid-destroyed filters prohibitive. A settling basin proved to be time-consuming and space-wasting. An entirely new method had to be developed.

## AGAIN... the answer is centrifuging

A typical example of "better results faster" — centrifuging's answer to many processing problems. Particularly in the chemical industries, AT&M Centrifugals have introduced long-sought economies in time, space and costs. The chances are that your production can be improved by some application of centrifugal force. AT&M's experienced engineering service is available to you at any time — without charge for study and recommendation, and with confidence strictly preserved. The coupon will bring you helpful information. AMERICAN TOOL & MACHINE CO., 1425 Hyde Park Ave., Boston 36, Mass.; 30D Church St., New York 7, N. Y.

SAVE TIME, SPACE AND COSTS WITH

# A.T. and M. CENTRIFUGING

AMERICAN TOOL & MACHINE COMPANY

1425 Hyde Park Ave., Boston 36, Mass.

Please send information on centrifuging applied to the following processes:

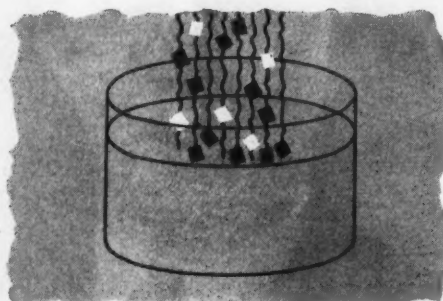
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☐ Precipitation ☐ Sedimentation ☐ Impregnation

\*Write here any other process. ....

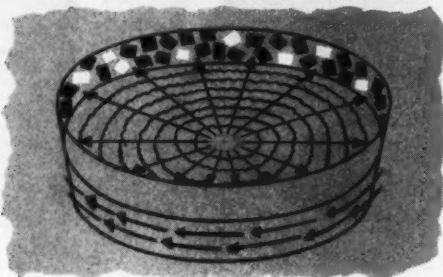
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Company .....

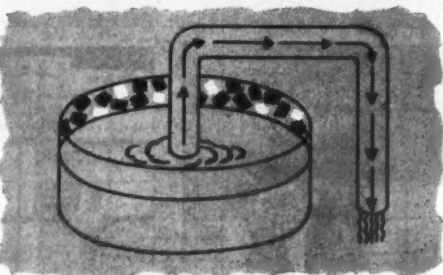
Address .....



1. An especially designed AT&M Centrifugal was installed, in much less than the previously required space.



2. The Centrifugal, whirling at high velocity, precipitates the lead oxide in a fraction of the settling time — while recovering much smaller crystals that were lost in filtering.



3. The operation completed, the remaining liquor is decanted over the top, and the cake is easily removed to a conveyor car.

When inquiring specify CP A4584 . . . see information request blank, pgs. 2-3



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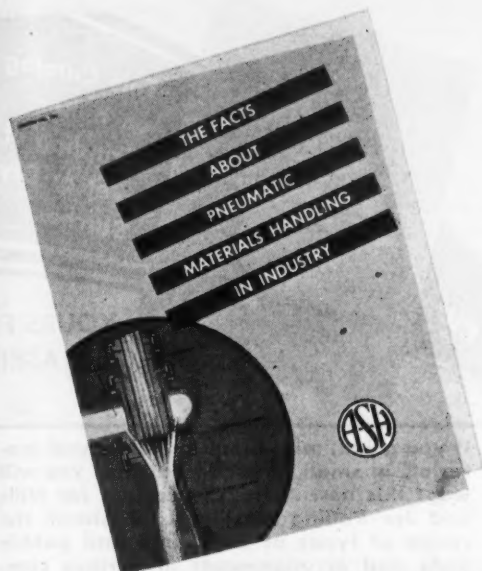
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### Hydrovactor Method of Materials Handling

Converging water jets create vacuum in the pipe line to the portable feeding tool, thus there are no moving parts to wear. All you need is a pump to supply water at the correct pressure and the chances are that you have one you can use. Feeding tool operates on Windswept Principle, which prevents overloading or clogging. Material is handled dry and may be discharged to nearby or distant lowlands or fill or it may be collected either wet or dry, with water recirculated if desired. System now used by many of the Nation's leading industrial plants and power stations. Send for Bulletin 744.

The Allen-Sherman-Hoff Co., 1433 Locust Street, Phila. 2, Pa.  
Representatives in Most Principal Cities.

When inquiring specify CP A4588 — see handy form pages 2-3

### Do you need SPECIAL FASTENING DEVICES made of non-corrosive alloys?

DOES your production call for special fasteners made of non-corrosive alloys — screws, nuts, bolts or any other "made-to-order" fastening device? Allmetal has the "know-how" and facilities to make such specials accurately and economically, and to deliver them promptly. We have equipment for tapping, slotting, reaming, turning, drilling, threading, stamping, broaching and centerless grinding . . . and we work not only with stainless steel but with monel, Inconel, duralumin, brass or any other non-corrosive alloys. Write, wire or 'phone for our quotation.

Send for FREE CATALOG



This new, 83-page catalog helps you select the correct size and type of non-corrosive fastening device for any particular job. Includes stock sizes, typical specials, engineering data, etc. Make request on company letterhead.

Write to

Dept. A

ALLMETAL SCREW PRODUCTS CO.  
80 Grand Street, New York 13, N. Y.

When inquiring specify CP A4589 — see handy form pages 2-3

### New Literature

#### Plastic Coated, Flameproof, Acidproof Safety Clothing

An unusually complete selection of plastic safety clothing is illustrated and described in an attractive two color catalog. Specific information as to fabric and garment construction is given in detail. In addition, the inside front cover offers actual swatches of the plastic-coated fabric. "Ply-garb" is the result of welding impervious plastic to base fabrics. Tested resistance to all corrosive liquids, it sheds water effectively and is soft and pliable. Finished garments are designed for air circulation, comfortable fit and freedom of movement.

"Plybarb" washes readily and dries very rapidly. It is flameproof. The wide selection of garments offered include sleeves, aprons, coats, overalls, complete two piece suits, coveralls, laboratory coats, cape sleeves with attached bibs, finger cots, great coats, hats, safety spats, leggings, safety hoods and all-purpose slacks. Garments may also be made to specifications if desired. Copies of the catalog are available on request.

THE MILBURN CO., Dept. CP, 3246 E. Woodbridge, Detroit 7, Mich.

When inquiring specify CP A4590  
— see handy form pages 2-3

\*

#### Jaw Crusher Handles Tough, Abrasive, High Compression Strength Materials

A bulletin on a new jaw crusher which is recommended for tough, abrasive, high compressive strength materials has recently been released. Embodying all-steel frame construction the A-1 crusher has up to 35 percent deeper crushing chamber and is made with exclusive suspended type jaw plates which permit expansion caused by peening of manganese steel. Its renewable wearing plates behind the jaw plates eliminate wear on jaw and frame.

Other features described in the bulletin include a three-piece toggle plate with renewable machine ends and seats and a stationary jaw shaft which ties both frame sides together, thereby adding extra rigidity and strength to the frame. As a result of these features, the crusher affords better crushing action, higher capacity, smooth service and low maintenance. Approved capacities in tons per hour and principle dimensions are tabulated for the four sizes. Copies of bulletin Number 7B6369 are available on request.

ALLIS CHALMERS, 636, Milwaukee, 1, Wisconsin.

When inquiring specify CP A4591  
— see handy form pages 2-3

**NEWARK**  
*Accuracy in Wire Cloth*

Decades of experience in the precision manufacture of accurate wire cloth and wire cloth fabricated products places NEWARK in an ideal position to recommend and supply the proper wire cloth for your processing.

NEWARK WIRE CLOTH is available in all commercial sizes, all weaves, all malleable metals, standard or special for every service.

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*for ACCURACY*

# Newark Wire Cloth

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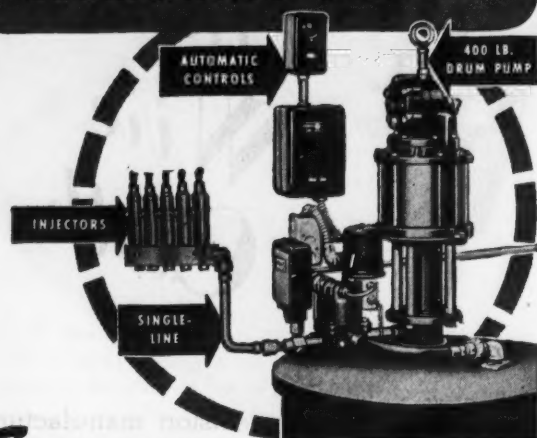
336 VERONA AVE.

When inquiring specify CP A4592 — see handy form pages 2-3

5-NWC

# LINCOLN

## CENTRO-MATIC LUBRICATING SYSTEMS



**Save BEARINGS • MACHINE HOURS • MAN  
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It is wise economy and sound practice to install Centro-Matic Lubricating Systems to protect the bearings on all machines. They save lubrication maintenance cost and eliminate shutting down machines for lubrication, thus permitting continuous operation. These modern systems consist of an injector connected to each bearing and a hand or power-operated pump. They are easy to install and their flexibility makes them adaptable to all types of machinery.



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FOR EVERY REQUIREMENT**

Lincoln manufactures a full line of Industrial Lubricating Equipment and Grease Fittings. Two popular items are illustrated—The Model 987 Powerluber, an air-operated, high-pressure grease gun that dispenses lubricant direct from original 25- or 50-lb. refinery package placed in the container, or the container itself which holds 60-lbs. of lubricant. Model 1273-D is a hand-operated 30-lb. capacity high-pressure bucket pump designed for ease of operation and portability.



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*Planner Builders of Engine Lubricating Equipment*

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Please send me literature on Centro-Matic Systems ☐ I would like to have catalog on Industrial Lubricating Equipment ☐.

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Company \_\_\_\_\_  
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City \_\_\_\_\_ State \_\_\_\_\_  
CP B46-4

When inquiring specify CP A4593 — see handy form pages 2-3

## New Literature

### Centrifugals for Industrial Applications

Separation, clarification and concentration problems are discussed in a folder prepared for users of centrifugals in the process fields. Detailed descriptions of construction and uses tell a comprehensive story. Typical applications for the clarifier are the removal of foreign particles from varnish, enamel, lacquer and shellac; the clarification of printing inks, patent medicine and waxes. Separation applications include that of separating fish oil from press liquor, separating acid sludge and recovery of wool grease from wool scouring liquor. Centrifugal machines are employed in the concentration of latex. Chemical engineers interested in problems which may be solved by the use of centrifugal force will find useful data in this booklet. Ask for bulletin No. 225.

The DE LAVAL SEPARATOR CO., Dept. CP, 165 Broadway, New York 6, N. Y.

When inquiring specify CP A4594 — see handy form pages 2-3

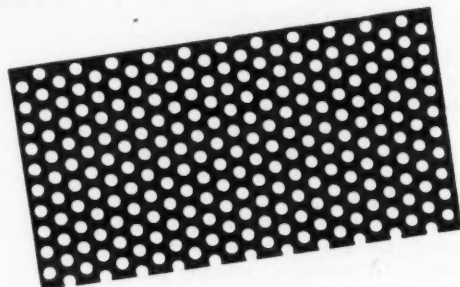
### Facts on Packaging Problems

Protection against change in moisture content, contamination, sifting losses, undesirable odors, insect infestation and loss of aroma are given in a new bulletin, "Seven Facts About Low-Cost Protective Packaging." Tells how waterproof textile bags may be used as containers for "hard to pack" products. Case histories on typical packaging problems are covered. The new folder may be had on request.

BEMIS BRO. BAG CO., Dept. CP, 408 Pine St., St. Louis, Mo.

When inquiring specify CP A4595 — see handy form pages 2-3

## MATCHING SCREENS



**to meet  
Your Processing Requirements**

Hendrick Perforated Metal Screens assure fast, full-clearance screening and long service life because they are made to meet your specific processing requirements. Materials are selected for the application — stainless steel, aluminum, copper, brass, bronze, Monel, nickel or other commercially rolled metals. Perforations are furnished in any required shape or size of opening, and flat, flanged or curved to any diameter.

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Amorgrids. Sales Offices in Principal Cities

When inquiring specify CP A4596 — see handy form pages 2-3



**If you grind, mix, blend or compound materials in small, multiple batches, you will want this new Abbe' Catalog on Jar Mills and Jar Rolling Machines. It shows the range of types of small ball and pebble mills and arrangements in various combinations of jars for processing batches in quantities from a pint to 60 gals. You'll want this convenient reference medium to help you select the right kind of grinding equipment for your laboratory or plant.**

**Write for Catalog No. 63.**

**ABBE' ENGINEERING CO.**

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When inquiring specify CP A4597 — see handy form pages 2-3

**Save production time  
with a  
SHOPLIFTER**

One man can handle heavy dies up to 500 lbs. alone.

Handy for general shop lifting jobs—loading trucks, etc.

Easily moved about on the 4" diameter wheels.

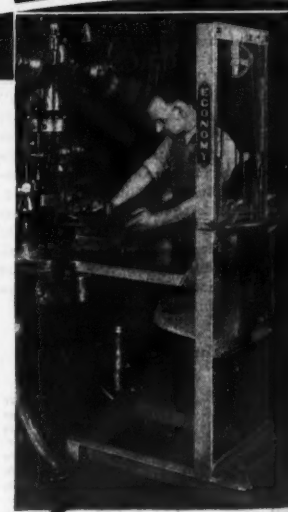
Platform, steel plate, 24"x24"  
Overall height—6'0"  
Platform lift—4'6"

Floor lock (optional) holds machine firmly to the floor.

Other Economy Lifting Machines of heavier capacities up to 5000 lbs. available.

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**Price \$147.50**  
Floor lock \$10.00 extra.  
Full Freight Allowed

**ECONOMY ENGINEERING CO.**

When inquiring specify CP A4598 — see handy form pages 2-3



### Cleaning and Drawing Compounds

A new 24-page catalog gives information on 39 cleaning and drawing compounds. Five general classifications of cleaning compounds are described which include: (1) electrolytic (2) immersion (3) solvent (4) spray and (5) water wash compound for spray booths. Superdraw compounds for metal forming lubricating requirements are included in a discussion of recommended uses. These are (1) Superdraw "B" for brass and brass alloys (2) Superdraw "V-113" for cold rolled steel, enameling iron, stainless steel and aluminum (3) Superdraw "V-125" for steel alloys and stainless steels . . . also aluminum and brass, (4) Superdraw "M-99" for heavy draws. The "Lo-Hi" ph process of cleaning is pointed out in detail. Copies of the catalog are available on request.

NORTHWEST CHEMICAL CO., Dept. CP, 9310 Roselawn, Detroit 4, Mich.

When inquiring specify CP A4599 — see handy form pages 2-3

★

### Coil Design Boosts Liquid Cooler Capacity

Bulletin No. 100 describes liquid cooling equipment. Coolers for use in chemical, photographic and industrial processes or in the food industries for a wide range of capacities are discussed. Details of construction and mention of a newly developed coil arrangement to provide increased capacity for comparable sizes are pointed out. Other facts on the chilling of water or aqueous solutions are available to anyone requesting a copy of bulletin No. 100.

NIAGARA BLOWER CO., Dept. CP, 6 E. 45th St., New York 17, N. Y.

When inquiring specify CP A4600 — see handy form pages 2-3

★

### Duplex Tubing for Corrosion Problems

Technical bulletin tells how duplex tubing made up of various combinations of ferrous and non-ferrous metals may be applied in oil refining, production of synthetic rubber, chemical plants, coke by-product plants and other process industries. Recommended uses of these combinations for wide applications are shown. Sectional drawings illustrate installation methods for condenser and heat exchanger tubing. Copies of this bulletin are available on request.

BRIDGEPORT BRASS CO., Dept. CP, Bridgeport, Conn.

When inquiring specify CP A4601 — see handy form pages 2-3

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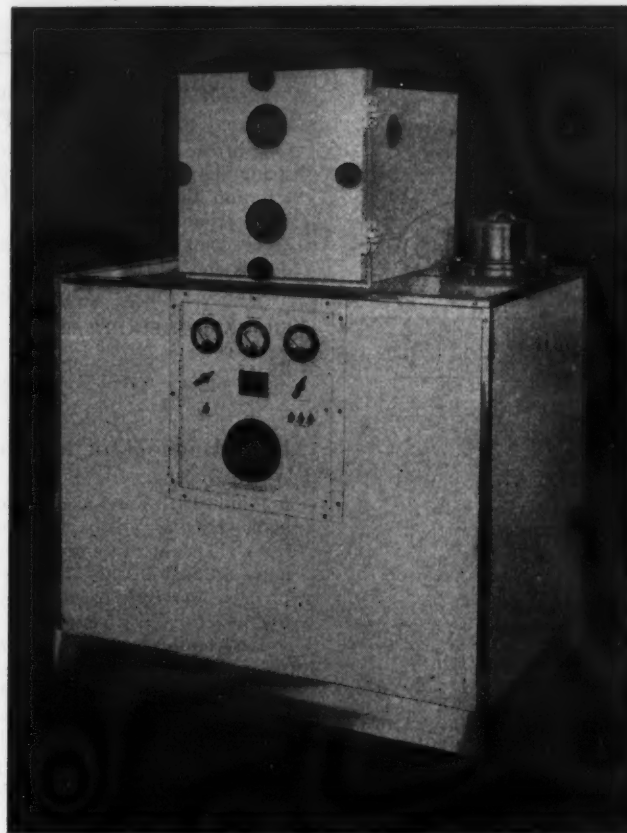
### Steamer for Processing Cotton & Rayon Fabrics

An eight-page bulletin describes a recently developed steamer for continuous open width processing of cotton and rayon fabrics. Construction and operation of the steamer is discussed, which the manufacturer claims is designed to eliminate both kier and jig scouring. It is stated that all widths of cloth may be prepared for conventional bleaching or dyeing in one alkaline steaming and that the steamer may be used for any of the hot bleaching processes. Copies may be had on request.

THE MATHIESON ALKALI WORKS, INC., Dept. CP, 60 E. 42nd St., New York 17, N. Y.

When inquiring specify CP A4602 — see handy form pages 2-3

MAY - JUNE, 1946



## A HIGH VACUUM DEHYDRATION UNIT FOR LABORATORY, PILOT PLANT OR LIMITED VOLUME PRODUCTION

Type 3501 Dehydration Unit with a trap capacity of four pounds of ice is designed for experimental or limited volume production work in the desiccation or concentration of heat-sensitive biologicals, antibiotics, food products, and fine chemicals.

This "package" of high vacuum dehydration equipment contains a complete pumping system consisting of an oil diffusion pump, mechanical pump and dry ice trap, which is capable of producing vacua of less than one micron of mercury in the drying cabinet.

Processing is controlled by three thermocouple type vacuum gauges and an adjustable heat input up to 1 kw. to the drying cabinet heaters. Provision is made for four thermocouples for temperature measurement inside the drying cabinet. Interior electric illumination and sight ports allow direct observation.

All parts are enclosed in a white baked enamel steel cabinet with stainless steel trim and table top. Gauges and controls are mounted on a hinged control panel. Removable panels in the body of the cabinet facilitate servicing. Various bottle and tray sizes are accommodated by adjustable shelves. Bottles too large to enter the cabinet may be pumped through four external ports for complete flexibility in laboratory use.

This unit was developed because a small, dependable, convenient and adaptable piece of experimental equipment was needed in our own dehydration laboratories. It is built to specifications written by our high vacuum engineers, who have designed and built the equipment in which the bulk of the world's supply of penicillin is desiccated. NATIONAL RESEARCH CORPORATION, Boston 15, Massachusetts.

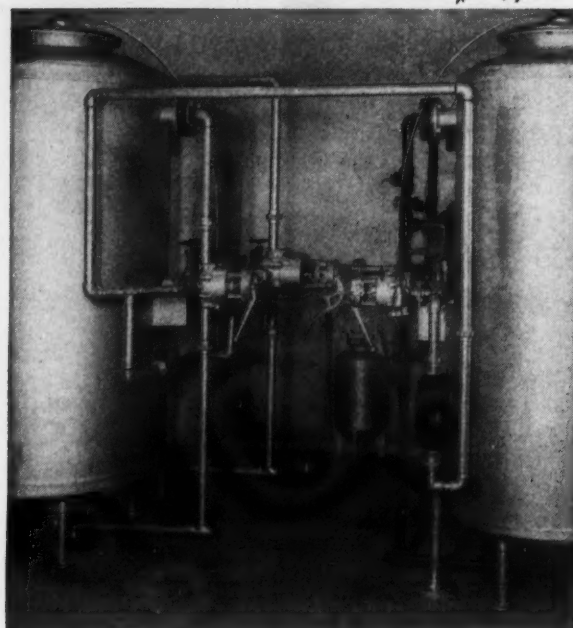
Write for complete information about Type 3501

HIGH VACUUM FOR INDUSTRY  
**NATIONAL RESEARCH CORPORATION**  
*Vacuum* ENGINEERING  
DIVISION

When inquiring specify CP A4603 . . . see information request blank, pgs. 2-3

## ILLCO-WAY de-ionized water replaces distilled water

That's the tenth unit  
in penicillin plants!



### In a new penicillin plant

...pure water is obtained from the above unit (2,400 gph) ... the 10th installation of ILLCO-WAY De-ionizing equipment for penicillin production.

Cost of the water is 1% to 10% of the cost of steam distillation. Hundreds of pharmaceutical, chemical, cosmetic and industrial plants are obtaining pure process water from ILLCO-WAY equipment of this type.

No fuel, no cooling water required, no periodic dismantling for cleaning. Purity meter shows quality of water at all times. Flow rates up to 500,000 gph.

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### ILLINOIS WATER TREATMENT COMPANY

849-S Cedar St., Rockford, Illinois  
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**WATER TREATMENT ENGINEERING**



When inquiring specify CP A4604 — see handy form pages 2-3

## New Literature

### String Discharge Employed in Rotary Vacuum Filtration

One of the subjects covered in this new bulletin is that of string discharge in continuous filtration. A detailed description illustrated with line drawings tells the story. The compression mechanism, the washing mechanism, drum dryer combinations, repuddling of starches, construction details and typical applications of rotary vacuum filters are described. This 16-page bulletin is available on request.

FILTRATION ENGINEERS, INC., Dept. CP, 858 Summer Avenue, Newark 4, N. J.

When inquiring specify CP A4605 — see handy form pages 2-3

### Betz Handbook of Industrial Water Conditioning

An up-to-date text for study, reading or reference covering industrial water conditioning in all its phases. The book contains 54 chapters and is divided into two sections. The first section entitled "Water Treatment" contains detailed discussions of the chemical and mechanical processes available for the treatment of water for industrial use, covering such subjects as coagulation, filtration, lime-soda softening, anion exchange, silica removal, boiler scale formation, embrittlement, slime and algae control, etc. The second section entitled "Water Analyses" deals with the impurities in water, how they originate, how they can be removed and methods of analyses suitable for plant control. Price \$1.00 per copy, postage prepaid. (Any remittances should be made direct to the Betz Co.)

W. H. & L. D. BETZ, Dept. CP, Philadelphia 24, Pa.

When inquiring specify CP A4606 — see handy form pages 2-3

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### ... Multi-Valve

Wherever you need complete and positive shut-off at all times, under all temperatures and pressures ... put your money on Multi-Valves! Designed and built on proved scientific principles, Multi-Valves afford a tight closure for steam, air, gas, water, oil, viscous liquids, and solutions. Giving smooth throttling action without erosion, they defeat the action of scale ... virtually renew their seats automatically ... require no regrinding.

Write today for complete catalogs. Investigate, and you'll agree — there's no valve like Multi-Valve in all the world.

M-6



**THE LUC LOW VALVE**  
MFG. CO. INC. TROY · N. Y.

When inquiring specify CP A4607 — see handy form pages 2-3

The COCHRANE DEMINERALIZER will give you the equivalent of distilled water at a fraction of the cost...

## IF YOU USE DISTILLED WATER



Write for a copy  
of this Cochrane  
Publication 4101

COCHRANE CORPORATION  
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PHILADELPHIA 32, PA.

When inquiring specify CP A4608 — see handy form pages 2-3

## ALL-NEOPRENE Latex GLOVES

### For Every Industrial Use

- ★ Impermeable to practically all acids and caustics
- ★ Highly resistant to oils and greases



**KEEP  
HANDS  
Safe**

### 5 POPULAR STYLES

★ No. 5760-5, 18" LONG  
EXTRA LONG GAUNTLET  
GAUGE .030 TO .040  
SIZES 10, 11

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LONG GAUNTLET  
GAUGE .030 TO .040  
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SHORT GAUNTLET  
GAUGE .020 TO .025  
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★ No. 5703-5, 10½" LONG  
STANDARD DUTY  
GAUGE .015  
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LIGHT DUTY  
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AKRON, OHIO

200 · 5th Ave. Bldg., New York Merchandise Mart, Chicago

When inquiring specify CP A4609 — see handy form pages 2-3



### Micromotors 1/25, 1/40 HP & Less

Practical information for the quick and proper selection of shaded pole induction type micromotors for AC applications are offered in a two-color illustrated bulletin. A totally enclosed motor for 1/25 HP or less is identified as Model "T". Air-stream enclosed cooling fins make possible considerably smaller size than is generally found in shaded pole motors. The diameter of the Air-stream housing is only 3 15/16 inches. Unique pressure locked resilient mountings, used with the Model "T" clamp together securely without tools and have no bolts or nuts to work loose. The type "L" is light weight for 1/40 HP or less and is only 3 9/32 in diameter. Three sizes: 1/40, 1/70 and 1/200 hp, with special windings available for intermediate ratings. Electrical characteristic to suit requirements can be met with "Flush-Weld" rotor design which permits modifications in rotor induction resistances. Copies on request.

REDMOND CO., INC., Dept. CP, Owosso, Mich.

When inquiring specify CP A4610 — see handy form pages 2-3

★

### Manual on Mechanical Packings Covers Selection, Application, Design of Adjacent Parts

A new book on selection of mechanical packing types, their application and the design of adjacent parts in hydraulic parts has recently been published. The primary purpose of the manual is to outline the basic principles which influence packings life and results of machine performance. Both leather and synthetic rubber packings and operating conditions governing the selection of materials are enumerated. Illustrations include over one hundred drawings of packings design and application and many photographs of successful installations, causes of packings failure and remedies. There are fifty reference tables which are included to save time consuming calculations. The 336 page book is adequately indexed and is bound in genuine leather to withstand usage. Price is \$4.50. Orders should be sent to company at address below. Request for further information, may however, be indicated on request slip.

GRATON & KNIGHT CO., Dept. CP, Worcester 4, Mass.

When inquiring specify CP A4611 — see handy form pages 2-3

★

### Two Tackifiers for Neoprene & GR-S Latex Adhesives — Pentalyne A and Pentalyne H

A new technical bulletin describes Pentalyne A and Pentalyne H, two tackifying resins particularly applicable in pressure sensitive adhesives based on synthetic rubber, such as GR-S and neoprene. Synthetic rubber adhesives with these resins as tackifiers are especially characterized by their excellent ability to withstand delamination at elevated temperatures. This bulletin also includes, for comparison purposes, data on Staybelite Ester 10 and Hercolyn, two other resins widely used in synthetic rubber latex adhesives. The incorporation of Pentalyne A and H in neoprene and GR-S latex adhesives is by methods similar to those used for Staybelite Ester 10. All three resins have rosin's well-known tack-giving properties, but with improved tack-retention due to their resistance to oxidation and discoloration.

HERCULES POWDER CO., Dept. CP, Wilmington, Delaware.

When inquiring specify CP A4612 — see handy form pages 2-3

MAY - JUNE, 1946

Here is

## CONTROLLED DIRECT-FIRED HEATING For HIGH TEMPERATURE REACTIONS



Edge Moor High Temperature  
Calandria Reaction Vessel

For any chemical reaction that can take place in metal and which requires heating at temperatures higher than that of steam, Edge Moor engineers have developed a direct-fired system. It combines efficient oil heat utilization with the finer control features of the most expensive installations.

The system is composed of but two parts — a separate combustion chamber arranged to supply a uniform amount of heat, and a calandria vessel having an induced draft fan and by-pass system for mixing the furnace

and exhaust gases. Through the use of simple control instruments a constant volume of gas at any predetermined temperature is drawn through the vessel to give a highly uniform heat transfer rate and economical use of the heat from the oil.

We solicit any production problems involving reactions, evaporation, heating, cooling, or any of their combinations. Edge Moor engineers are prepared to discuss the application of calandria vessel systems for their solution. For preliminary information write for descriptive literature.

Process Equipment Fabricators

**EDGE MOOR IRON WORKS, INC.**

EDGE MOOR DELAWARE

BRANCH OFFICES: New York 1, N.Y., Empire State Bldg., Chicago 2, Ill., One No. La Salle St.



When inquiring specify CP A4613 . . . see information request blank, pgs. 2-3

## SEND FOR THIS CATALOG!



Data, specifications and illustrations . . . factual and helpful . . . about Alberene Stone, the material that outlasts the building.

**ALBERENE STONE CORP. OF VIRGINIA**  
419 4th Ave., New York 16, N.Y.

When inquiring specify CP A4614 — see handy form pages 2-3

## New Literature

### Vibrating Screen Problems

Details of construction, operation and application are contained in this illustrated 28-page booklet. Applications of vibrating screens for plastics, mining, foundry, sand and gravel are described. General information to act as a guide to the selection of vibrating screens is listed. Ask for "A Guide to Better Screening."

SCREEN EQUIPMENT CO., INC., Dept. CP, Buffalo 13, N. Y.

When inquiring specify CP A4615 — see handy form pages 2-3

★

### Liner Replaced Without Internal Adjustments; Piping, Drive Not Disturbed In Process Pumps

"Facts About Rotary Pumps" is the title of a new bulletin which features a comprehensive illustration and description of the new type of removable liner which is now standard construction on this company's power pumps. The "Bucket Design-swinging vane-principle" is explained and the advantages in compensation for wear, easy maintenance and continued high pump capacity are emphasized. In connection with the new liners the illustrations and text make clear that the removal and replacement of the liner is an easy operation and that no internal adjustments are necessary. Neither piping nor drive are disturbed. These pumps are being used in difficult pumping jobs handling mildly abrasive or corrosive liquids.

BLACKMER PUMP CO., Dept. CP, Grand Rapids 9, Mich.

When inquiring specify CP A4616 — see handy form pages 2-3

## "Automatic"

# BATCH WEIGH PLANTS by *SYNTRON*

### Provide

**ACCURACY OF BATCH  
SIMPLE CONTROL  
SELECTIVITY**

— start working with the push of a button.

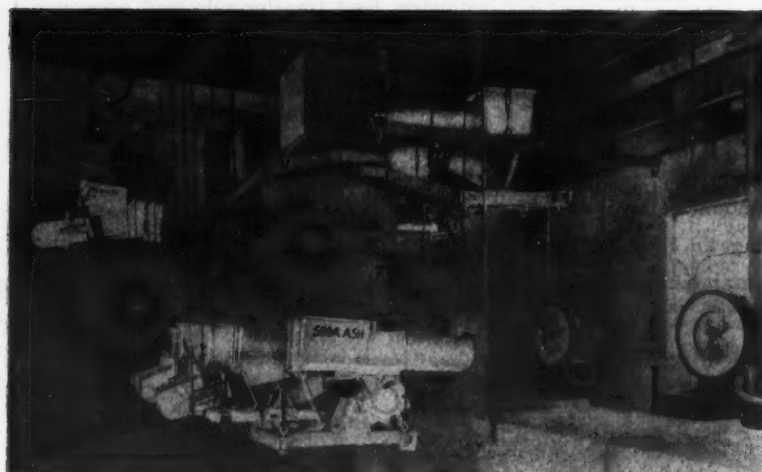
Vibrators on bins and hoppers keep the materials free-flowing. The vibratory feeders automatically filling scale hoppers to exact weight, and discharging onto secondary vibratory feeders, smoothly emptying each accurately weighed batch into mixers, blenders, belt conveyors, etc.

Any one, or a combination of any number of materials may be batched, accurately and automatically, at the same time.

— save you money, time and labor.

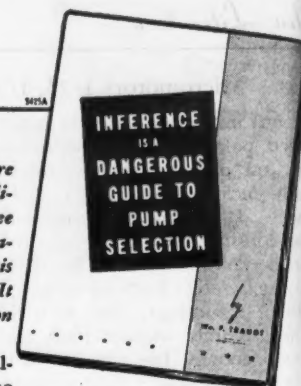
Write us about your problem.

**SYNTRON CO.**  
110 Lexington,  
Homer City, Pa.



Eight materials being batch weighed in a glass plant.

—When inquiring specify CP A4617 . . . see information request blank, pgs. 2-3—



*If industrial Pumps are one of your responsibilities, ask now, for free copy of this authoritative, unbiased analysis of Industrial Pumps. It is a timely presentation of pump facts.*

This is the first analysis, insofar as we know, to prevent the misapplication of Industrial Pumps. It is written by one who has a rather wide and diversified knowledge of many types of pumps. But the author holds no more of a brief for any one type than its adaptability warrants.

He endeavors to explain the limitations of various types of pumps such as piston, plunger, rotary and centrifugal. Thus he attempts to prevent, as much as possible, misapplication.

Based also on the long experience of Taber Pump Co., this modest contribution is offered to users of pumps in the processing industries. We will gladly send a copy of this Bulletin No. S-146, when it is requested on business stationery.

**TABER PUMP CO. • Est. 1859 • 320 ELM ST., BUFFALO 3, N.Y.**

When inquiring specify CP A4618 — see handy form pages 2-3

## NEW CATALOGS!

### FOR STEEL VALVE USERS

#### These New Edward Catalogs

contain dimensional data, sectional illustrations, design details, materials and many helpful suggestions in steel valve selection and operation. Be sure they are in your file.

**CATALOG 12-B Non-Return** Valves, globe or angle, flanged or welding ends; 300 to 1500 lb sp.

**CATALOG 12-D Blow-Off** Valves, straightway or angle, flanged or welding ends; 300 to 1500 lb sp.

**CATALOG 12-E Gate** Valves, Cast steel flanged or welding ends, for service from 150 to 3600 lb.

A request on your company letterhead will bring the catalogs you desire.

**THE EDWARD VALVE & MFG. CO., INC.**  
1230 WEST 144th STREET  
EAST CHICAGO, INDIANA

**Edward Valves**  
*Forged Steel & Cast Steel*

When inquiring specify CP A4619 — see handy form pages 2-3

CHEMICAL PREVIEW



## New Literature

### New Air-Cooled Conditioning Unit For Crane Cabs Working Over Ingot Molds, Soaking Pits

A new air-cooled conditioning unit for crane cabs working over ingot molds, soaking pits, or vats where acid or other fumes are present is described in new bulletin. The unit which is fitted to the top of the cab is entirely self-contained, and requires only an electric power connection for its operation. All equipment is enclosed in a steel frame and housing. The air supplied to the cab is cooled, cleaned, and constantly circulated. Dust and smoke are dissipated. Even acid fumes are eliminated by a special fume absorber. Maintenance consists of the occasional changing of filters, which are the standard throw-away type used in quantities in other steel mill operations. The unit itself has been especially designed with a rugged construction calculated to withstand the vibration inherent to heavy duty crane operation. (Bulletin 515 free on request.)

DRAVO CORP., Dept. CP, 300 Penn Ave., Pittsburgh 22, Pa.

When inquiring specify CP A4620 — see handy form pages 2-3

★

### Chart Classifies Plastics

A classification of plastics molding materials, that is aimed to provide data comparable to that which has been available to those using wood, metals and other materials, is now available. It presents in chart form an authentic guide to the various properties of plastics molding materials as established by material makers and molders. Both thermo-setting and thermoplastic products are included and values shown for their mechanical, electrical, thermal, optical, chemical and aging properties. Copies of this classification chart and explanation are available on request.

THE SOCIETY OF THE PLASTICS INDUSTRY, Dept. CP, 295 Madison Ave., New York 17, N. Y.

When inquiring specify CP A4621 — see handy form pages 2-3

★

### Power Brushes and Their Selection

Factors to be taken into consideration to obtain greatest use are contained in this booklet on "How to Select Power Brushes for Manufacturing Operations." Tables give detailed information on six elements which can be varied to modify brushing characteristics; others list brush types, one on removing burrs, another on surface finishing. Illustrations show power brushing operations and results attainable by proper brush selection and technique. Write to the manufacturer for a copy of this 24-page booklet.

THE OSBORN MANUFACTURING CO., Dept. CP, 5401 Hamilton Ave., Cleveland 14, Ohio.

When inquiring specify CP A4622 — see handy form pages 2-3

★

### Midget Pumps and Laboratory Stirrers

Small size pumps for laboratory and pilot plant operation are described in this new catalog. Construction details, care and operation of centrifugal and positive displacement pumps are informative. Specifications and performance data on 13 models are tabulated and charted. Laboratory stirrers are discussed including detailed descriptions of speed adjusting devices. Copies of this new bulletin "Eastern Midget Pumps and Laboratory Stirrers" may be had on request.

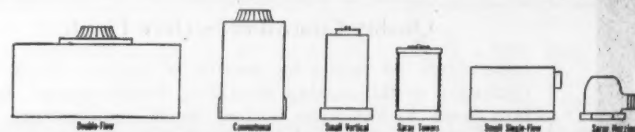
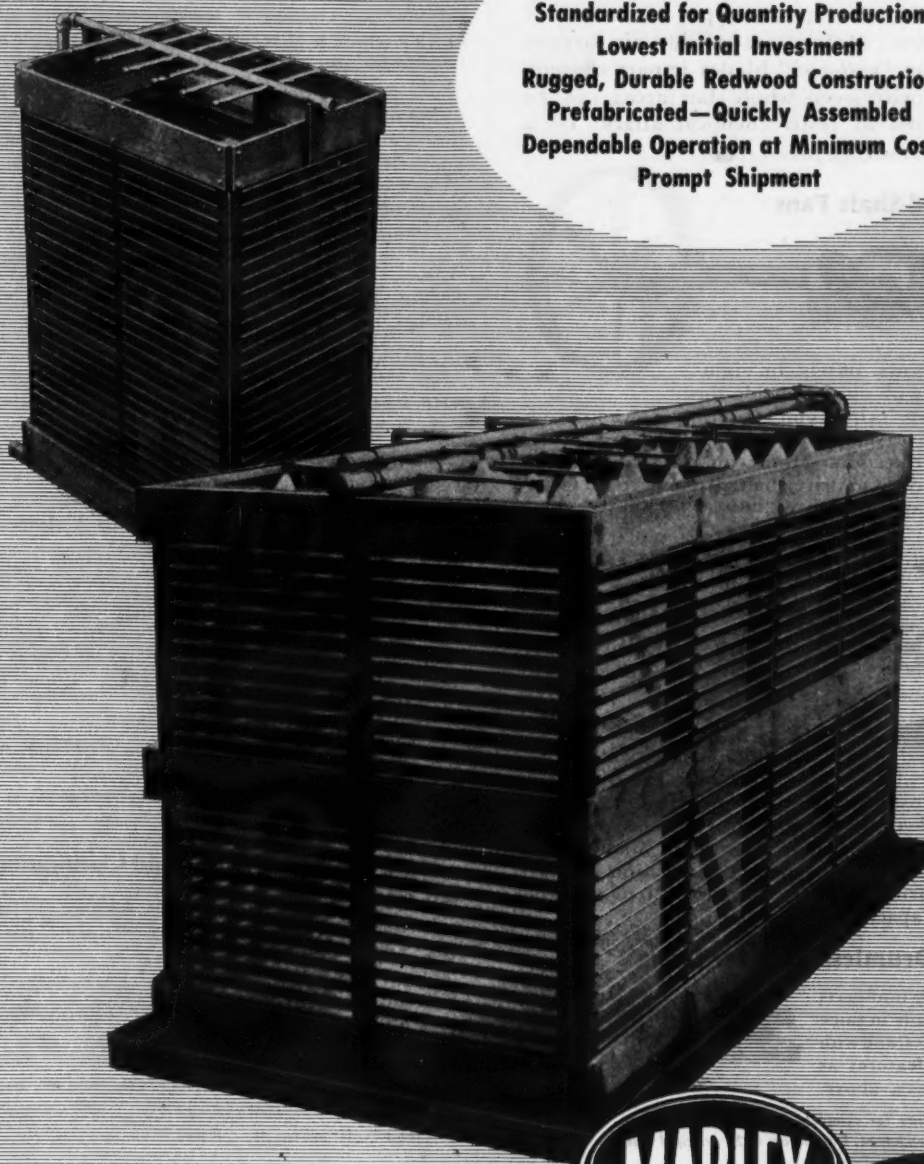
EASTERN ENGINEERING CO., Dept. CP, 296 Elm St., New Haven, Conn.

When inquiring specify CP A4623 — see handy form pages 2-3

MAY - JUNE, 1946

# Marley Packaged Product ATMOSPHERIC SPRAY TOWERS

Standardized for Quantity Production  
Lowest Initial Investment  
Rugged, Durable Redwood Construction  
Prefabricated—Quickly Assembled  
Dependable Operation at Minimum Cost  
Prompt Shipment



THE MARLEY COMPANY, INC. • KANSAS CITY 15, KANSAS

When inquiring specify CP A4624 . . . see information request blank, pgs. 2-3

## Three Ways to "BLOW HOT" with a Cool Fan

Excessive temperatures and corrosive fumes meet their *masters* in these three types of Propellair axial-flow fans. Motors are outside air stream. Airfoil-section "pull-push" blades impart efficient, uniform velocity over whole fan area; can be Heresite-coated to resist chemical attack; do a *marvelous* air-moving job.

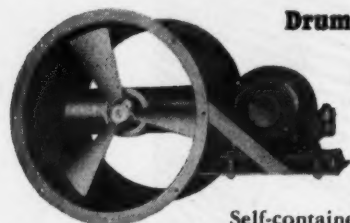
### Extended-Shaft Fans

FOR  
GENERAL  
SERVICE



Install in elbows, offsets, or right-angle turns, with motor outside the duct. Airfoil-principle entrance ring prevents eddy currents. Drive shaft and bearings are housed and sealed for protection. Motor on rigid cast base is flexibly connected to drive shaft. Sizes: 12 to 60 inches diameter. Capacities to 68,000 c.f.m.

### Drum-Type Fans



COMPLETE, CONVENIENT, SHORT DUCT SECTIONS READY TO INSTALL

Self-contained assemblies for ducts or stacks. Fan is mounted on heavy cross tube which also encloses belt drive. Motor bracket is part of unit. Frequently, the duct itself is all the support that's needed. Made with or without automatic air-cooling circulation through tube and bearing housing. Duct sizes: 20 to 48 inches diameter. Capacities to 43,000 c.f.m.

### Drumless Fans for Ducts

Insert directly into ducts or stacks. Made in same sizes, capacities, and with air-cooling features as drum-type fans, above.



Write for complete information and recommendations. Distributors in 25 principal cities.



When inquiring specify CP A4625 — see handy form pages 2-3

## New Literature

### Data on Custom Cut Gears

A brief bulletin, recently published, contains latest engineering data useful to engineers. It deals with spur, bevel, worm, helical, internal, worm wheels, spiral, sprockets and racks. Gears are cut to customers specifications only. A page of photographs shows several operations for gear cutting, shaping and inspection. Copies of the bulletin on request.

ABART GEAR & MACHINE COMPANY, Dept. CP, 4832 W. 16th St., Chicago 50, Ill.

When inquiring specify CP A4626 — see handy form pages 2-3

★

### Designed for Process Plants

Kettles, heat exchangers and other heat transfer equipment to meet the wide variety of applications in process plants are covered in an 8-page bulletin. Construction details, capacities of kettles for reaction, blending, distilling and cooking problems are pointed out. Illustrations show a number of items and descriptions include kinds of fabricating metals available to meet operating and code requirements. When writing request catalog section No. 103-K.

THE PATTERSON-KELLEY CO., INC., Dept. CP, 101 Park Ave., New York 17, N. Y.

When inquiring specify CP A4627 — see handy form pages 2-3

★

### Multiport Safety Relief Valves

Sizing data on relief valves is an important feature of this new booklet. Typical examples show how the multiport valve size is determined. Tabular data is included on valve sizes from 4" to 48". Numerous applications in relief of steam, air, gas, gasoline and oil vapors, water and adaptability to other service are cited. Copies of publication 4150 are available on request.

COCHRANE CORPORATION, Dept. CP, 17th St. & Allegheny Ave., Philadelphia, Penna.

When inquiring specify CP A4628 — see handy form pages 2-3

★

### Sanitation and Liquid Clarification

Pictures, drawings and diagrams describe conveyor sludge collectors, Tow-Bro sludge removers, grit collectors, washers, Verti-Flo thickeners, skimmers, aero-filters, Floctrol, rapid mixers, gravity waste water oil separators and water screens. Solid separation from liquids and liquid clarification problems are discussed in detail in this 44-page booklet. When writing request bulletin No. 46-3.

CHAIN BELT COMPANY, Dept. CP, 1600 W. Bruce St., Milwaukee, Wisc.

When inquiring specify CP A4629 — see handy form pages 2-3

★

### Quality Control of Surface Finish

Suggestions on achieving control of surface finish are contained in this catalog describing Profilometers. Symbols used to designate surface finish requirements for roughness, waviness and lay are shown. Operating principle of the Profilometer, accessories and their applications are pointed out. Ask for the 1946 copy.

PHYSICISTS RESEARCH CO., Dept. CP, 321 S. Main St., Ann Arbor, Mich.

When inquiring specify CP A4630 — see handy form pages 2-3

# 8

PAGES  
about the  
**BEST WAY**  
to evacuate  
acid fumes



This bulletin on Duriron, Acid-proof, Exhaust Fans will help you select the best fan for your fume-removal job.

It contains complete engineering information on range of sizes, speeds and capacities; suggestions for most successful installation; and dimension drawings showing space required for different discharge arrangements. In addition, you'll find reasons why these units give year-after-year of quiet, efficient service with no more attention than an occasional oiling of the motor.

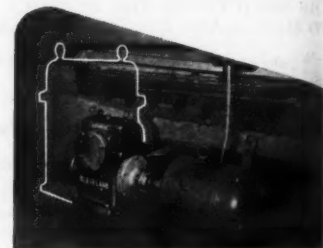
Write for your **FREE** copy today.

DC-4

**THE DURIRON COMPANY, Inc.**  
DAYTON 1, OHIO

When inquiring specify CP A4631 — see handy form pages 2-3

**SPEEDAIRE**  
... Saves \$742



As the white outline indicates, a standard unit of approximately twice the frame size would be required to do Speedaire's work.

A MICHIGAN company needed nine speed reducers for conveyor drives in the new foundry. Various types were studied; costs estimated; capacities figured; advantages compared. Speedaire was selected.

Result: A cost-saving of \$742. Each Speedaire is doing as much work as a standard unit of approximately twice its dimensions—delivering more horsepower per dollar.

Speedaire is Cleveland's new fan-cooled worm-gear speed reducer. It is compact and powerful. This feature may enable you to enjoy the economy and satisfaction of right-angle worm-gear drives

on more of your machines.

Because Speedaire is fan-cooled it does more work, permitting substantial reduction in size, with consequent reduction in installed cost. It gives the long, trouble-free service characteristic of all Cleveland units.

It's easy to find out how much you can save with Speedaire. Catalog 300 shows you how to quickly figure proper size Speedaires for your equipment. Send for your copy. The Cleveland Worm & Gear Company, 3257 East 80th St., Cleveland 4, Ohio.

Affiliate: The Farval Corporation  
Centralized Systems of Lubrication  
In Canada: PEACOCK  
BROTHERS LIMITED



**CLEVELAND**  
Worm Gear  
*Speed Reducers*

When inquiring specify CP A4632 — see handy form pages 2-3

CHEMICAL PREVIEW



## CLIPPER MADE THIS CUT IN 5 SECONDS

Clipper Masonry Saws provide fast, economical cutting of special sizes and shapes of Clay, Concrete, Magnesite, Sillimanite, Acid Resistant Brick and other refractories.

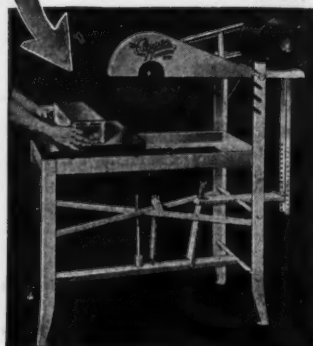
Precision cuts easily made assuring tighter joints and longer lasting walls and arches in furnaces, boilers and acid chambers. Greater salvage of materials made possible through use of this equipment.

### FREE TRIAL IN YOUR PLANT.

Complete information sent on request.

**CLIPPER MANUFACTURING CO.,**  
4033 Manchester, St. Louis 10, Mo.

### Write for DESCRIPTIVE LITERATURE



When inquiring specify CP A4633 — see handy form pages 2-3

## SIGNODE

### PERFORMS AN IMPORTANT FUNCTION IN INDUSTRY



Caustic soda in drums travels safely with the protection of Signode's wall anchored loading.

Even chemicals in bulk can be shipped in greater safety with Signode's PLANNED PROTECTION. Damage in transit is reduced to a minimum. Signode Methods provide top security and economy for all shipments — in drums, pails, bags, cartons or bulk. Undamaged arrival is more essential now than ever before.

Signode's world-wide packaging and carloading experience is yours to draw on. A Representative will gladly offer suggestions to fit your specific problem. WRITE TODAY.

**SIGNODE STEEL STRAPPING CO.**  
2658 N. Western Ave., Chicago 47, Illinois  
391 Furmen Street, Brooklyn 2, N. Y.  
477 Bryant Street, San Francisco 7, Calif.  
Branches in 21 Principal Cities

**SIGNODE**  
STEEL STRAPPING

When inquiring specify CP A4634 — see handy form pages 2-3

## New Literature

### Worm Gear Speed Reducers For Mixing & Grinding Units

Illustrated four page bulletin features installation photos and blueprint drawings to highlight outstanding points in design and operation of worm gear units used on mixing and grinding equipment for various industries including various food processing operations. The "Speed-aire" fan-cooled unit recently introduced is given prominence.

**CLEVELAND WORM & GEAR CO., Dept.**  
CP, 3277 East 80th St., Cleveland 4, Ohio.

When inquiring specify CP A4635  
— see handy form pages 2-3

★

### How to Handle Carbonic Gas

This is the title of a new four-page leaflet recently issued which gives valuable suggestions for all users of CO<sub>2</sub> gas. The purpose of the folder is to effect economies in the use of carbonator gas. The user of carbon dioxide is reminded that cylinders should always be stored in a clean, dry, cool place away from the sun.

**THE LIQUID CARBONIC CORP., Dept. CP,**  
3100 S. Kedzie Ave., Chicago 23, Ill.

When inquiring specify CP A4636  
— see handy form pages 2-3

★

### Chemical Proportioning Pumps

Six constructional details are shown in a new bulletin. Details of check valve design, diaphragm, oil relief valve, vacuum relief valve, micrometer stroke control and other parts of this chemical proportioning pump are listed and illustrated. Typical applications in the water treatment and sewage treatment fields are shown in large diagrams. Various types are described and a table of sizes and capacities is included.

**LAPP INSULATOR CO., INC., Dept. CP,**  
Process Equipment Div., Leroy, N. Y.

When inquiring specify CP A4637  
— see handy form pages 2-3

★

### A Test for Mercerization

Details of a test for mercerization in the presence of dyes are contained in a reprint recently issued. Basic data has been prepared by Mr. Sidney Edelstein, who is well known for his work on the mercerization process. Also included is a short discussion on "The Effect of Aniline Black on Barium Activity Determination." Copies available on request. **DEXTER CHEMICAL CORPORATION,** Dept. CP, 819 Edgewater Road, New York 59, N. Y.

When inquiring specify CP A4638  
— see handy form pages 2-3

## DOES YOUR OPERATING BOARD SHOW THIS PICTURE of AUTOMATIC CONTROL?

These operating board gages in the power plant of Beattie Manufacturing Company, makers of Axminster, Velvet and Wilton Rugs, Little Falls, N. J., tell a real "behind-the-scenes" story of steam power automatically controlled to extremely close limits regardless of load variations.

The second gage, recording boiler feed water pressure shows 470 lbs. set pressure maintained by a LESLIE Pump Governor which completely controls operation of turbine-driven feed pump. Third gage indicates efficient operation of a LESLIE Pressure Controller working instantly to make up any deficiencies in low pressure heating system. This make-up steam is taken from 125-lb. system and controlled so that pressure is held accurately at 9 psi.

The steady needle pointer on fourth gage shows process steam reduced to 120-lbs. by a LESLIE Pressure Controller from 400-lbs. initial boiler pressure, shown on first gage.

The real reason for this extreme accuracy of control lies in LESLIE'S policy of only building better regulators — giving extra features such as stellited valve seats, surface hardened

stainless steel valves and heat-treated stainless steel cylinder liners with highly ground finish—all as standard equipment which guarantees positive dead-end service and close regulation.

Investigate today the savings which LESLIE Regulators make possible. Write for LESLIE Catalog of Engineering Data.

Look for "LESLIE Regulators" in your classified telephone directory in these cities, for LESLIE factory-trained engineers to help you with your regulation problems:

Baltimore, Md.	Milwaukee, Wis.	San Francisco, Cal.
Boston, Mass.	Montreal, Que.	Savannah, Ga.
Bridgeport, Conn.	New Orleans, La.	Seattle, Wash.
Chicago, Ill.	New York, N. Y.	St. Louis, Mo.
Cleveland, Ohio	Philadelphia, Pa.	Syracuse, N. Y.
Dallas, Tex.	Pittsburgh, Pa.	Toronto, Ont., Can.
Detroit, Mich.	Portland, Ore.	Troy, N. Y.
Greenville, S. C.	Providence, R. I.	Tulsa, Okla.
Houston, Tex.	Richmond, Va.	Vancouver, B.C., Can.
Kansas City, Mo.	Rochester, N. Y.	Wilkes-Barre, Pa.
Los Angeles, Cal.	Rutherford, N. J.	Youngstown, Ohio
Louisville, Ky.	San Antonio, Tex.	

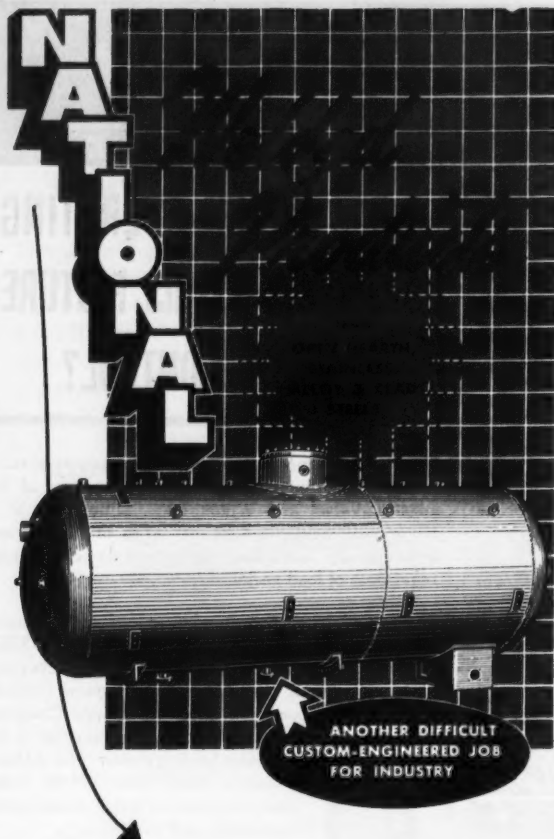
## LESLIE CO.

281 Grant Avenue • Lyndhurst, N. J.



PRESSURE REDUCING VALVES • PUMP GOVERNORS • PRESSURE CONTROLLERS  
TEMPERATURE REGULATORS • SELF CLEANING STRAINERS • LESLIE-TYFON WHISTLES

When inquiring specify CP A4639 — see handy form pages 2-3



Fifty years of specialized fabrication experience, plus unexcelled modern production facilities are your assurance that NATIONAL can do your most difficult job—satisfactorily.

NATIONAL will gladly work with you either while your plans are in the formative status or from your completed blueprints.

**LET'S TAKE a Plant Tour**  
Send today for your copy of our new illustrated brochure—describing National facilities and products.

**National**  
**ANNEALING BOX COMPANY**  
API ASME U-68 U-69 Codes • Stress Relieving • X-ray  
Pledged to Quality Since 1895  
**WASHINGTON, PENNA.**

When inquiring specify CP A4640—see handy form pages 2-3

## New Literature

### Wire Rope Clamp Will Hold Excess Loads

A two-color illustrated bulletin describes the convenience, safety and time saving features of a new positive clamp for all wire rope applications. The clamp incorporates a unique and exclusive wedging action in its component parts and makes it possible for the clamp to hold loads in excess of the tensile strength of the rope used. The unit is alloy steel and cadmium plated for weather protection. It makes a neat, perfectly secure, small thimble loop. No sharp, loose ends of wire to foul lines or scratch hands; no projections to catch on moving parts. The clamp makes a neat splice of two ropes over a hook or through an eye; fastens two ropes together in parallel or splices rope ends. The clamp is supplied in all sizes for rope 1/16 inch diameter to 3/4 inch. Plain loops of any size are easily and quickly formed and no special tools are needed. Copies of bulletin on request.

NUNN MFG. CO., Dept. CP, 2135 Dewey Ave., Evanston, Ill.

When inquiring specify CP A4641—see handy form pages 2-3

★

### Machinery Mountings Stop Vibration; Allow Precise Leveling of Machines

"Vibro-levelers" is the title of a new 8-page bulletin (Number Bu 50) which gives information on a complete line of machinery mountings which are designed to stop transmission vibration as well as provide a means of leveling machines. Included are illustrated examples of how the "Vibro-Levelers" are employed to stop transmission of vibration not only from small equipment, such as bench grinders, but also from heavy duty equipment. The "Vibro-Levelers" are simple in design and construction and are easy to install. An inner circle in the stud, is insulated from the outer shell by a wall of mechanically bonded rubber. They have a safety margin of 16 to 1. Once installed, no further maintenance is required. The bulletin contains tabulated data of practical value in estimating requirements and making selections.

BUSHINGS, INC., Dept. CP, Coolidge at 114 Mile Rd., Royal Oak, Mich.

When inquiring specify CP A4642—see handy form pages 2-3

★

### Foot Switches Control Wide Range of Powered Operations

An eight page bulletin illustrates and describes a selection of foot switches. Five basic models can be combined with the many available contact arrangements to meet various requirements. Such manually operated switches find a wide field of use for electrically controlled operations of all types. Machines operated by motors or other power can be started and stopped instantly, and at the will of the operator. A typical application is the use of one of these switches on high frequency heating machines. Another is in rubber manufacture, controlling heat to molding platen plates.

In some instances two switches (Model MC's) are used in a special circuit as a safety device. With such a dual hoop-up, both the operator's hands must be free of the machine or work and actually depressing both switches before the machine will operate.

The bulletin provides convenient listings of specifications and in addition to photos utilizes drawings to provide detailed information as to design, installation, etc. Copies are available on request.

GENERAL CONTROL CO., Dept. CP, 1200 Soldiers Field Rd., Boston, Mass.

When inquiring specify CP A4643—see handy form pages 2-3



Glass may be the ideal medium for the filtration phase of your processing. The glass used in the manufacture of F-M WOVEN GLASS FILTER MEDIA is special chemical glass which gives it the most desirable characteristics for use in the filtration of chemicals.

**Filter Media Corporation**

HAMDEN 14, CONNECTICUT  
CHICAGO • SALT LAKE CITY

SPECIALISTS IN FILTER CLOTH FOR INDUSTRIAL FILTRATION

When inquiring specify CP A4644—see handy form pages 2-3

**BUMP PUMPS**  
WILL DO YOUR PUMPING JOB BETTER

FIG. 1 FIG. 2 FIG. 3 FIG. 4

Capacities 1/2 to 400 GPM

**SEE WHY**

THE illustrated principle of operation shows why Bump Industrial Pumps have low maintenance cost. There are no grease cups, and no internal thrust—only 2 moving parts, which make them easy to clean and easy to maintain. As one company that has used a large number of Bump Pumps for years states: "They do a better job at a lower total cost to us than any other pump now offered on the market." Bump Industrial Pumps are positive displacement at any speed or pressure . . . self-priming under high vacuums or against head pressures.

**The BUMP PUMP CO.**  
LA CROSSE • WISCONSIN

When inquiring specify CP A4645—see handy form pages 2-3





### AMERICAN Counter-Tred MATTING

A tough, durable, long wearing rubber and cord matting with a resilient non-slip surface that affords safety in wet or slippery areas. Ridged bottom affords aeration and drainage. Easily handled for cleaning. Adheres perfectly to the floor. Keeps the feet dry.  $\frac{3}{4}$ " thick, 24" wide, any length.

#### AMERIFLEX

##### Flexible Hard

**Wood Link Matting**  
Links are held on galvanized steel springwire framework. Lies flat. Follows contour of the floor. Beveled edges. Can be rolled or folded.

**SOLID PLASTIC FRICTION MATTING**  
**COLORS RUBBER LINK MATTING**  
**SAFETY STAIR TREADS AND RUNNERS**  
**TIRE FABRIC MATTING**  
**PERFORATED AND CROSS CORRUGATED MATTING**  
**SPONGE RUBBER MATTING**  
**STEEL MATTING**

Write for prices and folder, "A Mat For Every Purpose", describing matting for promoting safety, providing comfort, reducing fatigue and furthering sanitation.

**AMERICAN MAT CORPORATION**  
"America's Largest Matting Specialists"

1798 Adams Street  
Toledo 2, Ohio.

**The ONLY Successful OIL and GREASE RESISTANT MATTING**  
**Neo-Cord Counter-Tred**

Contains no rubber  
Made with Dupont Neoprene

When inquiring specify CP A4646 — see handy form pages 2-3

**AN Outline OF THE COE DRAINATOR**

**—the ADVANCED STEAM TRAP with NO MOVING PARTS...**

**SPEEDED** manufacturing schedules demand this better steam trap.

Its higher efficiency eliminates common bottlenecks and steps up production to new high levels. Greater air eliminating capacity permits quicker starts of cold equipment.

Capacity for handling a larger volume of condensate gives increased transfer of heat.

Continuous discharge of both air and condensate maintains high efficiency.

The complete absence of moving parts avoids inspection costs and annual repair bills.

A glance at the gauge glass indicates that the Drainator is efficiently performing the functions for which it was purchased — a question that is not easily answered in relation to conventional steam traps.

**Get THE COMPLETE Story**

**Write to The COE MFG. Co.**  
503 Bank St. - Painesville, Ohio

When inquiring specify CP A4647 — see handy form pages 2-3

## New Literature

### Conveyor Trolley Has No Wheel Shafts or Spindles

A four page folder (Number 2041) gives detailed information concerning a new free-rolling conveyor trolley that is unique in its simplicity. Contrary to the design of conventional I-beam trolleys, this trolley has no wheel shafts or spindles and does not require separate retainers for its full complement of hardened, accurately balanced alloy steel balls. Two basic elements, wheel and one-piece bracket form the deep inner and outer races of the bearing. The inner bearing race, being a part of the wheel forging, revolves within the outer race formed by the head of the trolley bracket. Provision is made for lubrication manually, with an automatic system or by use of lubrication fitting which may be installed.

The new trolley is available for use with the "Link-Belt" overhead trolley conveyors, or can be purchased separately. The catalog lists sizes, dimensions and weights. Copies are available on request.

LINK BELT CO., Dept. CP, 307 N. Mich. Ave., Chicago, Ill.

When inquiring specify CP A4648  
— see handy form pages 2-3

★

### Universal Heat Exchanger

A new bulletin describes the Twin G-Fin Section, which has been characterized as a universal heat exchanger because of its many applications in cooling, heating, condensing and heat exchange services. 21 features and corresponding advantages are shown with a detailed description of design and construction of this finned tube unit. Installation views and field reports are also included. Write for bulletin 1614.

THE GRISCOM RUSSELL CO., Dept. CP, 285 Madison Ave., New York 17, N. Y.

When inquiring specify CP A4649  
— see handy form pages 2-3

★

### Temperature Control Devices

Illustrated 16-page catalog describes a broad line of temperature control instruments. Included are thermostats, mercury-plunger type relays, selector switches, thermo-regulators and other products. Controls are available in temperature ranges between -30° F. and 500° F. Copies of this bulletin No. 14 on request.

H-B INSTRUMENT CO., Dept. CP, 2519 N. Broad St., Philadelphia 32, Penna.

When inquiring specify CP A4650  
— see handy form pages 2-3



THE

*Stevadore, Jr.*

**ADDS PROFIT  
DIVIDES HANDLING TIME  
MULTIPLIES MANPOWER  
SUBTRACTS FATIGUE**

The Stevadore, Jr. plus one man = increased production and more profits.

This combination of a Stevadore, Jr. and one or two men does the work of ten men in less handling time and with less fatigue.

Useful in loading — or unloading — trucks and cars . . . in low stacking operations . . . in a gravity conveyor line as a "booster" or "pusher."

The Stevadore, Jr. — portable, power belt conveyor . . . easily moved from one job to another.

. . . Adjustable Rapid-Lock Supports — from 18" horizontal level to 72" delivery height.

. . . Will lift 225 lbs. of distributed load weight at the rate of 50' per minute.

. . . Plugs into standard 110-volt lighting circuit.

**IT COSTS NOTHING TO GET FULL PARTICULARS  
WRITE TODAY FOR FREE LITERATURE**

OFFICES IN PRINCIPAL CITIES



Manufacturers of  
STEEL FORGED CASTERS • TRUCKS • CONVEYORS • POWER BOOSTERS

*The Rapids-Standard Co., Inc.*

Sales Division—350 Peoples National Bank Bldg., Grand Rapids 2, Michigan

When inquiring specify CP A4651 — see handy form pages 2-3

# NOW AVAILABLE

## Handy New INFRARED UNITS for Quick Heating UP TO 800° IN SECONDS

OPERATES ON  
AC OR DC  
CURRENT



MODEL 60-000 HAND UNIT ONLY \$7.50  
MODEL 60-200 HAND UNIT WITH ADJUSTABLE ARM  
AND CLAMP TYPE BASE FOR MOUNTING \$11.50

Think of the many places where you can use this "quick heat" utility tool in laboratory, maintenance and production operations. Directs Infrared radiant energy exactly where you want it for baking, drying, or preheating small areas. For instance, a temperature of over 800° F. can be applied to 20-gauge black metal, 1½" in diameter in 1½ minutes. Speedy, flexible, safe. Hundreds of uses in industry. Furnished complete with 375-watt 110-volt lamp, 18 ft. cord set, plug, and off-on switch—ready for use. Reflector is gold plated inside, gray wrinkle finish outside. Prompt delivery on immediate orders.

Write for descriptive folder and use—  
THE FOSTORIA PRESSED STEEL CORPORATION  
FOSTORIA, OHIO



When inquiring specify CP A4652 — see handy form pages 2-3

# Equipment for Production

## Laboratory Dryer Evaporates 8-15 Lbs. Water Per Hour

Completely packaged spray dryer produces  
powdered or granulated materials

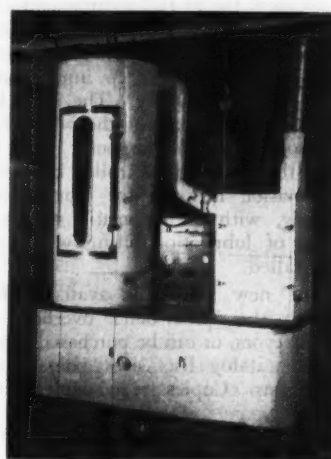
Uses — This completely packaged laboratory spray dryer meets the following requirements in industrial and research applications: (1) To indicate quickly and easily and with small samples whether a specific solid can be removed from solution by spray drying; (2) Test premixed production batches for large commercial capacity spray dryers; (3) Conveniently produce small quantities of powdered products; (4) Produce commercially solid products in relatively small quantities, where even small losses are expensive; (5) To dry hygroscopic materials.

Features — Simplicity of operation, ease of cleaning and convenient size. The moisture content and particle size of the powder produced can be controlled within narrow limits. The solid product is dried at reasonable temperatures, and removed from the hot zones continuously in the shortest possible time. The dryer is delivered completely equipped and ready to operate after the electricity and steam are connected.

Description — The spray compartment is of cylindrical shape with a flat top, fabricated of N. 403 stainless steel and is 30" diameter and 60" in height. It is insulated and covered with enameled steel sheeting. A side door equipped with sight glass permits view of spraying operation. The whole spray compartment can be removed and cleaned with ease. A dial thermometer is installed at the center. The heated air inlet assembly consists of an air filter, steam coil, blower and duct work leading into the stainless steel annular nozzle in the false bottom of the spray compartment. A stainless steel pressure tank with removable head and a dished bottom is the receptacle for holding the solution to be dried. A pre-heating coil, larger tanks and a mixer are available.

The 3 cfm air compressor is housed inside a suitable cabinet together with receiver, oil separator and air filter. Clean air is delivered at 100 psi. Two collecting drawers are constructed of stainless steel or white porcelain. The cabinet size is 3' x 7' x 2½'. Top may be stainless steel or white porcelain and provides ample area to hold the cylindrical spray compartment, panel, etc.

Two powder collecting drawers, conveniently available, are constructed of stainless steel. The first of these is located under the bottom of the spray compartment which is equipped with a stainless steel false section where the



Complete spray dryer assembly —  
spray compartment, cabinet and  
panel board

primary powder collects. A 1/10 HP gear head motor drives a sweeper arm which pushes the settled solids into a slot in the false bottom. This slot is connected to the drawer. The second drawer is placed under the dust collector assembly. This is of enameled steel and sanitary construction having an ample bag capacity and a manual shaking mechanism. The exhaust blower is installed inside this chamber and draws the wet air through the canvas, discharging it into the atmosphere. The switch and pilot light for this blower are on the panel board. Complete information concerning specifications and operation of the "Research Spray Dryer" on request.

RESEARCH EQUIPMENT ENGINEERS, Dept. CP, 50  
Broad St., New York, N. Y.

When inquiring specify CP A4653 — see handy form pages 2-3

## Drawer Type Oven Increases Paint Brush Production

No increase in floor space required

Uses — Vulcanization of set-in-rubber paint brushes is accomplished in drawer type ovens.

Features — Vulcanizing capacity is greatly increased since the drawer type oven has more usable space within the oven. With the same amount of floor space, capacity is increased 2½ times. A new type of heat distributing and

## PRODUCT OF THE MONTH



MILWAUKEE, WIS. — Allis-Chalmers announces a new standard 2kw (output) dielectric heater. Provides fast, economical, safe heating for non-metallic materials. For some of its many applications, send for Bulletin 14B6431 today. A 2030

ALLIS-CHALMERS MILWAUKEE 1  
WISCONSIN

When inquiring specify CP A4654 — see handy form pages 2-3



## Production

air circulating system also aids in maximum utilization of interior working space. Temperatures within the working area of the oven do not vary more than plus or minus  $2\frac{1}{2}^{\circ}$  F. Uniform heating provides proper curing of set-in-rubber paint brushes. Drawers permit easy loading.

**Description** — A direct fired gas heater is mounted on top of the oven. It is of the atmospheric type with a rating of 150,000 BTU per hour. A high capacity forced exhaust system removes fumes from the equipment. 4" insulation reduces heat losses. Automatic temperature control with a range of  $125^{\circ}$  F. to  $350^{\circ}$  F. is provided. Safety controls shut down the equipment in case of gas, power or fan failure. A high limit cut-out operates also to shut down the system if the controlled temperature rises  $10^{\circ}$  F. above the set point. Oven handles 1800 lbs. of brushes per charge. More information is available from the manufacturer.

DESPATCH OVEN CO., Dept. CP, 619 S. E. Eighth St., Minneapolis 14, Minn.

When inquiring specify CP A4655 — see handy form pages 2-3

★

## Indirect Fluorescent Lighting For Industrial Areas

*Brightness of reflector approximately same as  
that of ceiling*



Fluorescent fixtures provide skyline effect

**Uses** — For indirect lighting in offices, drafting rooms and similar industrial areas.

**Features** — Used continuously and when mounted and spaced in accordance with recommended specifications, an evenly lighted ceiling is achieved, providing skyline effect of evenly distributed light, with no deep shadows or sharp contrasts and without distracting glare from the light source.

**Description** — This "Star Luminous Indirect Luminaire" makes use of 40 watt fluorescent lamps which are accessible from the top of the reflector. The reflectors are held in place by illuminated satin aluminum supporting bands and are easily slid in and out of place for maintenance purposes without disassembly of the unit. The molded reflectors and end caps are made from Plaskon, a molding compound which provides reflectors that are light weight, non-electrostatic, non-shatterable, uniform in appearance and will not support combustion. All visible metal parts are finished in satin aluminum.

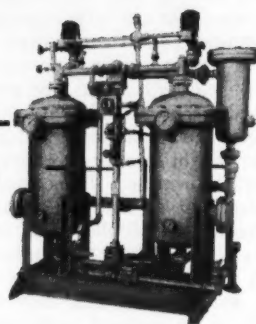
F. W. WAKEFIELD BRASS CO., Dept. CP, Vermillion, Ohio.

When inquiring specify CP A4656 — see handy form pages 2-3

MAY - JUNE, 1946

# WHEN

# THEN



## REALLY DRY—TO $-30^{\circ}$ F DEW POINT

... for the protection of pneumatic instruments, valves and tools—however long the air line or cold its environment. The duty of this model is 100 cu. ft. per minute (free air) entering at  $70^{\circ}$ F and pressures up to 80 p.s.i. A simple throw of the lever, and set of the timer, starts automatic reactivation (by steam) without interrupting air flow. Economical, simple, and effective—all the way to  $-30^{\circ}$ F dew point.

TRAPS AND AFTERCOOLERS

WON'T STOP AIR-LINE CORROSION



INSTRUMENT MAINTENANCE

IS RUNNING HIGH (ORIFICE TROUBLE)



AIR-MOTOR DIAPHRAGMS

DETERIORATE TOO RAPIDLY



a KEMP dynamic desiccating dryer  
will get both water and water vapor

If the compressed air you use for so many purposes were dry—really dry—you wouldn't have to worry so much about equipment corrosion, line freezing, contamination of product, clogging of orifices, deterioration of diaphragms, lubricant-loss in air tools, and such. But it isn't! The mere removal of *water* (with traps or after-coolers) doesn't remove *water vapor*.

And that's where KEMP desiccation comes in.

A KEMP dryer chemically adsorbs *both* water *and* water vapor from air, as it passes through generous activated-gel towers. And along with the moisture, it stops water-borne dirt and oil (carried over from compressor or picked up in transit).

Compressed air is too valuable a tool in the chemical industries *when dry and clean* to allow to become a nuisance *through moisture and dirt*.

Let us help you do something about it.

# KEMP OF BALTIMORE

PRECISION CARBURETION + ADAPTED COMBUSTION  
FOR INDUSTRY'S HEAT-USING PROCESSES  
ATMOSPHERE GENERATION & ADSORPTIVE DRYER SYSTEM  
FOR PROCESS CONTROL AND PROTECTION

JMLCo K-11 cp

THE C. M. KEMP MFG. CO.  
405 E. Oliver Street, Baltimore 2, Md.

Send me your new 48-page illustrated booklet on  
"Dynamic Dryers"..... ☐  
Send a field-engineer to "talk turkey" (no obligation,  
of course)..... ☐

NAME.....

POSITION.....

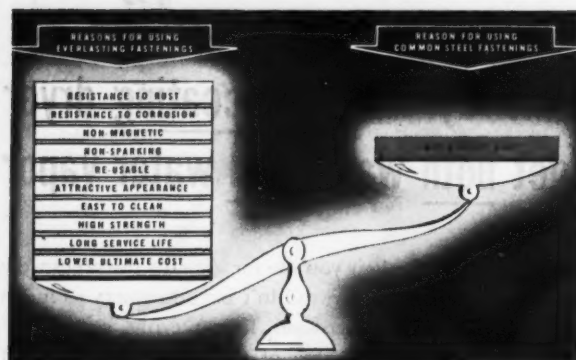
COMPANY.....

PLACE.....

When inquiring specify CP A4657 . . . see information request blank, pgs. 2-3

# 10 to 1

## IN FAVOR OF EVERLASTING FASTENINGS



Here's the score. 10 or more reasons for using everlasting fastenings . . . just 1 for common steel. An amazing combination of advantages in favor of non-ferrous and stainless bolt and nut products . . . only lower first cost in favor of common steel. Check the list against your own fastening requirements. Write us for details.

### PROMPT SHIPMENTS FROM STOCK

Harper maintains stocks of over 4360 different items . . . large quantities of each. Others being added constantly. Specials made to order from ample stocks of new metals. Write for 104 page 4-color catalog.

**THE H. M. HARPER COMPANY**  
2644 FLETCHER STREET  
Chicago 18, Illinois

Branch offices: New York City, Philadelphia,  
Los Angeles, Milwaukee, Cincinnati, Houston  
Representatives in principal cities

**HARPER**  
Chicago

BRASS • BRONZES • COPPER • MONEL • STAINLESS

When inquiring specify CP A4658 — see handy form pages 2-3

## Production

### Tape Drive Portable Light Weight Dial Scale

*Tapes are fully self-aligning; held in place by  
patented button connection*

**Uses** — For wide range of accurate weighing operations in process plants; design permits placing of loads on extreme edges.

**Features** — The design of the beam and capacity beam assembly is unique. The beams are fully protected by the box enclosing them. They are of satin finish stainless steel; poises are aluminum hard chrome plated. The flush reading feature of the poises eliminates the possibilities of error. Scale mechanism is self-compensating for temperature changes. All tapes fully self-aligning and held securely in position by patented button connection.

**Description** — The dial head mechanism of this new scale is the maker's standard tape drive ball bearing assembly, moisture proof, completely sealed in and swivels to any position even while weighing. An easily operated locking device securely fastens pendulum weights and keeps the weight off the ball bearings. The newly designed tape drive, with ball bearing unit, — no pinion, no rack, no sector, — has tapes that are fully aligning and are held in position by patented button connection. Poises are fitted with springs to assure correct positioning and the tare poise is securely held with a tare type screw. The capacity beam is notched. The assembly has an extremely large fulcrum distance and unusually small angular travel. Heavy balance weight has been eliminated. Cover for tare beam box is furnished if specified. An adjustable and self-compensating oil dash pot, located in the base of the column closely controls the action of the pointer and prevents shocks from reaching the mechanism.

The platform is the free-oscillating three-lever type; levers operate on fixed fulcrums, have no lateral motion. Platform shell is streamlined with wheels underneath. Outside finish is rich gray, baked wrinkle lacquer. The net weight of the tare beam model scale is 375 pounds.

HOWE SCALE CO., Dept. CP, Rutland, Vt.

When inquiring specify CP A4659 — see handy form pages 2-3

★

### Pressure Cleaner For Use With Plant Steam Supply

*Conveniently used on lines with 80-150 lbs. pressure*

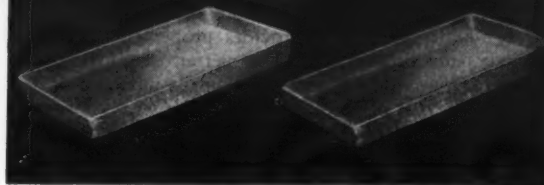
**Uses** — Utilizing plant steam supply provides powerful cleaning action — heat, water, detergent and friction. A variety of specialized cleaning compounds can be used through this unit to clean numerous surfaces from delicate aluminum to heavy construction equipment.

**Features** — The apparatus is safe and easy to operate. **Description** — Weight only 28 pounds. Unit is easily portable and quick couplings permit fast connections. Any steam line maintaining 80 to 150 pounds of pressure with a 3/4 inch valve outlet is all this is required for connecting the cleaner. Three manual controls vary the temperature, quantity of solution and nozzle pressure to handle the needs of the job at hand. The steam cleaner can be adjusted to deliver a high-temperature, penetrating spray or a moderate warm spray.

TURCO PRODUCTS, INC., Dept. CP, 6135 S. Central Ave., Los Angeles 1, Cal.

When inquiring specify CP A4660 — see handy form pages 2-3

## TWO TRAYS *They look alike*



### But What a Difference in PERFORMANCE!

**Amersil\*** Annealed silica products have an inner strength and endurance that silica ware never had before. Amersil trays, and other products by Amersil, don't start with two strikes against them. They have: (1) uniform wall thickness, (2) all strains and stresses removed — thus they are better able to withstand the shattering effect of repeated thermal shock. For silica ware that endures — specify Amersil. Write for interesting bulletin.

\*Trade Name Registered

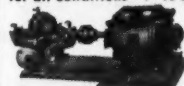
**AMERSIL COMPANY Inc.**  
CHESTNUT AVENUE ENGELHARD HILLSIDE 5, N. J.

When inquiring specify CP A4661 — see handy form pages 2-3

### EXPERIENCE + SKILL + PRIDE OF PRODUCT — PUMPS "by Aurora" AURORA CENTRIFUGAL • APCO TURBINE-TYPE

The able performance of our pumps, with high efficiency and lasting dependability, fulfills the fundamental purpose of our business. Put a PUMP "by Aurora" on that next liquids handling job. You'll LIKE IT, TOO!

Aurora Deep Well Turbines  
for all conditions—4" to 24"



Type AD Hor. Split Case,  
Double Suction Centrifugal



NSA Aurora  
Centrifugal  
Sump Pump

Type OD Hor. Split-Case Double Suction  
Single Stage Centrifugal



Type GMC  
Close-Coupled  
Centrifugal

APCO Turbine-Type Pumps  
The simplest of all pumps.  
Ideal for small capacity,  
high head duties. Silent,  
compact and lasting.



Type GGU Side Suction  
Single Stage Centrifugal



APCO Horizontal  
Condensation  
Return Unit



APCO Single Stage  
Turbine-Type



Write for CONDENSED CATALOG M  
or See Our Catalog in SWEETS.

DISTRIBUTORS IN PRINCIPAL CITIES

**AURORA**  
PUMP COMPANY

62 Loucks Street, AURORA, ILLINOIS

When inquiring specify CP A4662 — see handy form pages 2-3



## NEW REMOVABLE LABELS

to carry  
INSTRUCTIONS  
TRADEMARKS  
SALES FEATURES  
WARNINGS

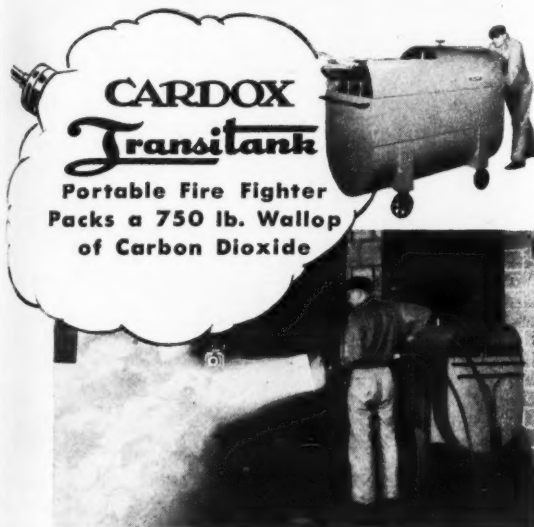


★ Here is an exciting new kind of label. It adheres firmly to any smooth surface—metal, plastic, glass, wood, painted or varnished. Won't dry out and fall off—yet like magic is easily peeled off in one piece without leaving a trace! ★ At last you can place instructions, warnings, tradenames, describe finishes, point out features, directly on the product at the very place such data should be carried. ★ When these Kum-Kleen stickers have served their purpose, they may be peeled off without scraping or tearing—a feature your customers will appreciate. ★ They are quickly applied without moistening—are available in any size, shape or color, printed to your specifications. ★ These are the same famous stickers so widely used in war and peace time production to carry instruction, rejection and inspection data.

Send for sample and complete information. Address Dept. CP-5, AVERY ADHESIVES, 451 E. Third St., Los Angeles 13 • New York, Boston, Detroit, Chicago, Pittsburgh, San Francisco, Atlanta, Kansas City, Mo. In Canada, Enterprise Sales, Toronto

AVERY **Kum-Kleen** STICKERS

When inquiring specify CP A4663 — see handy form pages 2-3



**CARDOX**  
**Transitank**  
Portable Fire Fighter  
Packs a 750 lb. Wallop  
of Carbon Dioxide

Now available in many major industrial areas in hand propelled and motorized models. Takes portable fire fighting units out of the class of "first aid" equipment. Its 750 lb. storage unit equals the carbon dioxide capacity of seventy-five 10-pound CO<sub>2</sub> hand extinguishers. For full information on this remarkable unit that makes major fire protection now economically available at relatively low cost, write for Bulletin 1656.

**CARDOX CORPORATION**  
Bell Building Chicago 1, Illinois

When inquiring specify CP A4664 — see handy form pages 2-3

## Production

### Light Weight Sewer Cleaning Machine

Compact, one man unit; works through 4" "P" traps

Uses — For cleaning sewers and drains.

Features — One man operates machine because it is compact and light. All models work through 4" "P" traps easily. Heavy hose guide is 100% safe because whip is controlled near and be-



Safe, rapid cleaning unit

yond operator. Instant clutch lever control gives the operator positive control. The 15 foot cable sections are easily handled when operating and easily replaced should breakage occur, — no spoiling of 100 foot cable sections.

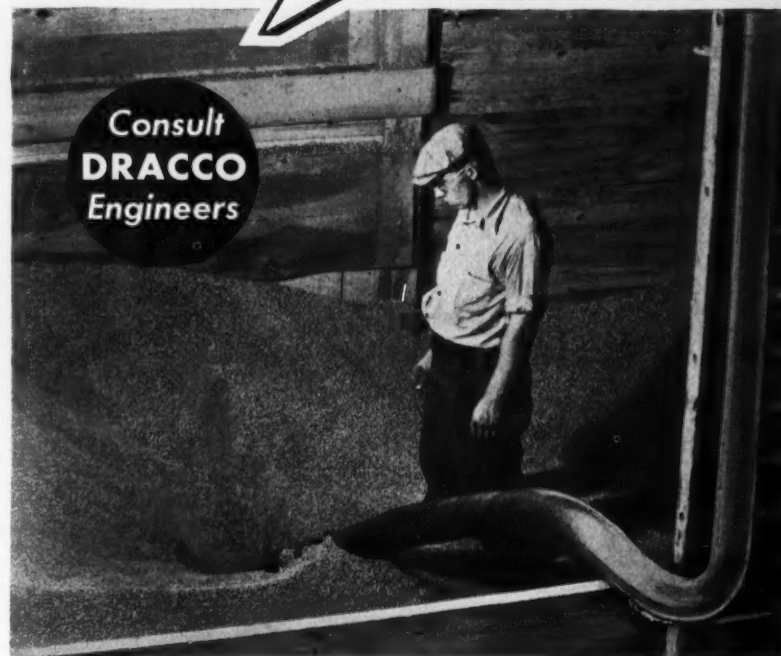
Description — The newest of three models available is the K-200, illustrated here. It provides a light weight utility unit incorporating all the features of the heavier model, — motor driven cable, 700 rpm, — 150 Ft. cable capacity. Cutting tools and cable advanced or reversed thru hand operated clutch lever and reverse switch while machine is operating. Machine operates close to sewer openings and requires only three square feet of floor area. Piping from 1½" to 10" can be serviced. One bolt connects motor permitting substitution of various types of electric motor or gasoline drives to suit all conditions. The entire unit is collapsible for easy transportation to the job. It weighs only 95 pounds and is especially suitable for factories. It is equipped with anti-friction ball bearings, a 2 jaw clutch, fabricated table assembly and frame supports. 1/3 HP, 110 v., 60 c., 1 phase reversible motor is standard equipment. Illustrated folder gives complete details on this and the other two models.

KOLLMANN MFG. CO., Dept. CP, 4806 Peach St., Erie, Pa.

When inquiring specify CP A4665 — see handy form pages 2-3

## MOVE MORE MATERIAL in Less Time..with Less Labor

Consult  
**DRACCO**  
Engineers



Savings in handling time . . . and savings in labor . . . are advantages that always follow the installation of DRACCO Pneumatic Conveyors. If your plant uses chemicals, grains or granular materials, DRACCO Pneumatic Conveyors will handle them at the lowest possible cost. A DRACCO Pneumatic Conveyor and ONE man often replaces several men, and will do a much better job. Ask DRACCO Engineers to check your material-handling methods and tell you what savings you may expect. These savings will help you to meet postwar competition.

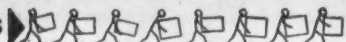

For Further Information Write

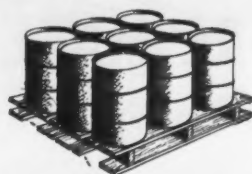
**DRACCO CORPORATION**

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

**DUST CONTROL EQUIPMENT**  
**PNEUMATIC CONVEYORS • METAL FABRICATION**

When inquiring specify CP A4666 — see handy form pages 2-3

THIS  OR THIS 



## Generalift PALLETS

• Here's an example of Generalift savings—often as high as 90% in materials handling. For by the use of pallets and fork lift trucks, many items can be moved as *one* load at *one* time—no wasteful piece-by-piece movement. Hence with Generalift, you reduce handling costs, save time and protect shipments in transit besides realizing a simple method of warehousing and taking inventory.

Generalift Pallets, Skids and Lift Boxes are made of sturdy hardwood construction. Designed for long life, rough handling, and extra heavy loads. Write today for free Generalift booklet.

ECONOMIZE . . . PALLETIZE . . . GENERALIZE!

### GENERAL BOX COMPANY

GENERAL OFFICES: 22 N. Dearborn St., Chicago 10, Illinois

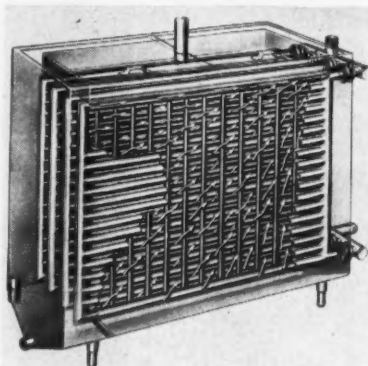
DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon. Continental Box Company, Inc.: Houston, Dallas.

When inquiring specify CP A4667 — see handy form pages 2-3

## Production

### Industrial 32° Water Provided 24 Hours a Day

Unique short refrigerant gas flow increases refrigeration tonnage



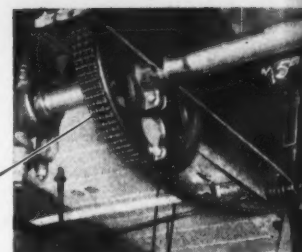
Cooling sections employ patented gas-flow

nearest point of outlet. Water cannot freeze because the refrigerant temperature is automatically controlled and maintained at a point as near to the temperature of water coming off the evaporator section as possible. Also, because of this "short gas flow" principle, higher back pres-

Uses — For industrial plants requiring uniformly cold water, — provided in various capacities to meet particular requirements.

Features — Cooling sections employ a special "short gas flow" principle enabling the refrigerant gases to escape instantly to the nearest point of outlet. Water cannot freeze because the refrigerant temperature is automatically controlled and maintained at a point as near to the temperature of water coming off the evaporator section as possible. Also, because of this "short gas flow" principle, higher back pres-

20 h.p. drive, motor to lineshaft, 1150 to 263 r.p.m. Triple No. 433 Diamond Roller Chain on 30" centers; 19 and 83 tooth sprockets.

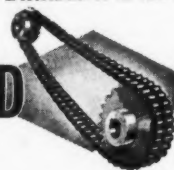


**IT WILL RUN FOR YEARS  
No Maintenance Work  
to Worry You**

When DIAMOND Roller Chain Drives are installed, you can be sure of long service without the troublesome job of fixing, tightening, or replacing them.

DIAMOND Chains are really a series of precision bearings—they drive without slipping and are suitable for factory drives from electric motor or engines, and from shaft to shaft—for slow or high speeds, across shafts spaced wide apart, or so close together that the sprockets nearly touch.

Let us help you select appropriate drives. Ask for Catalog 595 containing helpful drive data. DIAMOND CHAIN COMPANY, Inc., Dept. 411, 402 Kentucky Ave., Indianapolis, Ind. Offices and Distributors in All Principal Cities.



**DIAMOND ROLLER CHAINS**

When inquiring specify CP A4669 — see handy form pages 2-3

**FOUR STRONG NON-CORRODIBLE**

"WONDER WHY I CAN'T EAT UP THIS MATERIAL?"



# KARBATE

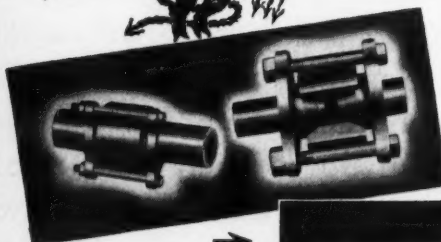
BRAND

**EQUIPMENT**

**CONNECTIONS**

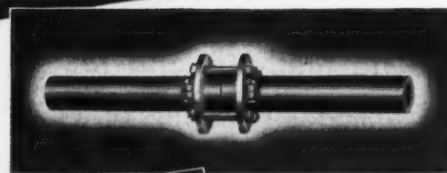
#### Type FC Flexible Coupling

Permits movement in any direction to protect "Karbate" piping from effects of vibration, misalignment, and differential expansion. Easily installed or dismantled on the job. Simplifies final pipe-length adjustment between pieces of equipment. Used with "Karbate" pre-assembled standard nipples and fittings, pipe may be cut to length and rapidly installed in the field.



#### Type V Flanged Connection

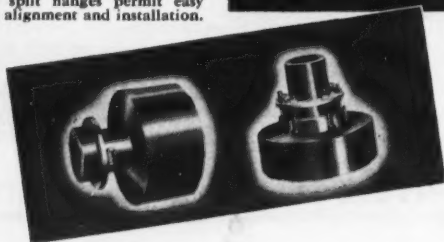
Thick, small-diameter collars provide sturdy construction. These can be used with companion flanges of almost any design or material. The separate cast-iron split flanges permit easy pipe alignment and installation.



#### Type V Nozzle

#### Type SC Slotted Coupler

Recommended for connections on "Karbate" tanks, towers, heat exchangers, and similar equipment. Generally installed at our factory—not particularly suitable for field installation. The Slotted Coupler is of more compact construction than the Type V Nozzle, but the choice of connection depends upon requirements of each job.



STRENGTH and ease of installation distinguish four improved "Karbate" chemically resistant equipment connections that are doing a first-rate job in many kinds of service.

Like the many "Karbate" specialty products used for storage, conveying, handling, and processing of corrosive liquids and gases, these connections are not only strong, but have high resistance to mechanical and thermal shock and to the action of most acids (notably hydrofluoric), alkalies, and other corrosive chemicals.

The designs of these connections are the result of years of experience of National Carbon Company, Inc., in furnishing "Karbate" impervious carbon or graphite equipment to the chemical, process, and other industries.

For additional information about "Karbate" equipment connections, write to our nearest Division Office for Catalog Section M-8805.

The words "National" and "Karbate" are registered trade-marks of

**NATIONAL CARBON COMPANY, INC.**

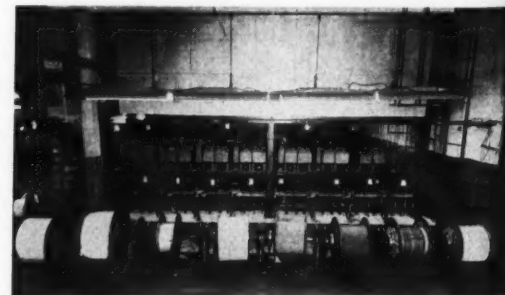
Unit of Union Carbide and Carbon Corporation

UCC

30 East 42nd Street, New York 17, N. Y.  
Division Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco

### Automatic Coating System for Rubber and Synthetics

One man can handle eight-end system processing 768,000 feet of material per eight-hour day



Shown above are the payoff stands, lacquer pots, saturation pots, and the lower portion of the lacquer tower of a new automatic coating system. It is used for lacquering insulated wire and for processing cords, yarns, fabrics, paper, surgical suture, fishline, V-belt cord and other continuous materials, applying such coatings or impregnants as rubber, latex, solvent resins, plastics, polyvinyls, silicones and silicone rubbers.

A standard eight-end system will saturate and coat at 100 to 200 feet per minute, applying 1 to 12 coats in a continuous automatic process.

**THE INDUSTRIAL OVEN ENGINEERING CO.,**  
Dept. CP, 13825 Triskett Road, Cleveland 11, O.

When inquiring specify CP A4670 — see handy form pages 2-3

CHEMICAL PREVIEW

When inquiring specify CP A4668 . . . see information request blank, pgs. 2-3



## Production

tures can be used, reducing the cost of mechanical refrigeration.

**Description** — The unit consists of stainless steel ammonia or freon cooling sections in a metal tank placed far enough apart so that the machine can be maintained clean and sanitary. Because the cooler sections are made of stainless steel, rust and scale cannot develop to interfere with the efficiency of the heat transfer. The upper distributing trough, removable for easy cleaning, is also made of stainless steel. This prevents the holes from rusting and assures proper water flow.

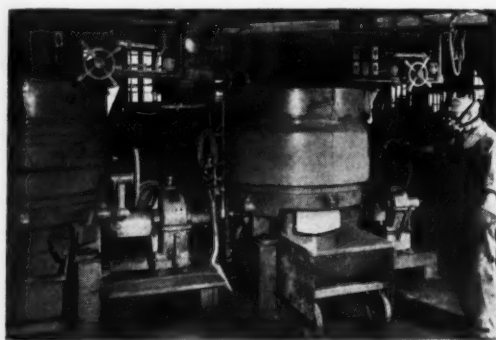
As water from an upper distributing trough flows downward in a thin film over the outside cooling surfaces, it is cooled to as low as 32° F., if desired, by the refrigerant travelling in an upward direction inside the sections. Water storage of any capacity can be provided. Tonnage of any maximum can be met.

JENSEN MACHINERY CO., Dept. CP, Nelson St., Bloomfield, N. J.

When inquiring specify CP A4671 — see handy form pages 2-3

## Storage Battery Paste Mixer

*Provides homogenous mix; also for boiler compounds, soaps, etc.*



Unit provides homogeneous mixing

**Uses** — For the production of battery paste this mixer handles lead oxide, sulphuric acid and water. Also used for all types of mixing involving dry semi-plastic and pasty materials. Typical products being mixed and blended are boiler compounds, catalysts, fertilizers, glass batching, paper coatings, putties and soaps. A comprehensive bulletin tells of the construction and recommended applications of this equipment which is available from the company mentioned below.

**Features** — The unit provides proper and homogeneous mixing of these components. Also cools the mixture and confines the lead oxide dust and fumes within the mixing equipment.

**Description** — Provision is made to dissipate the generated heat developed by the chemical reaction taking place by mixing lead oxide, sulphuric acid and water. The resulting paste is cooled in the equipment prior to handling in pasting machines which apply it to the lead battery plate grids. A cooling hood accomplishes this. An enclosed loader confines the lead oxide dust and fumes within the mixer to prevent hazards to operating personnel. Units shown are two No. 1½ — 1200-lb. capacity.

NATIONAL ENGINEERING COMPANY, Dept. CP, 549 West Washington Blvd., Chicago 6, Ill.

When inquiring specify CP A4672 — see handy form pages 2-3

# GENERAL ELECTRIC Announces...

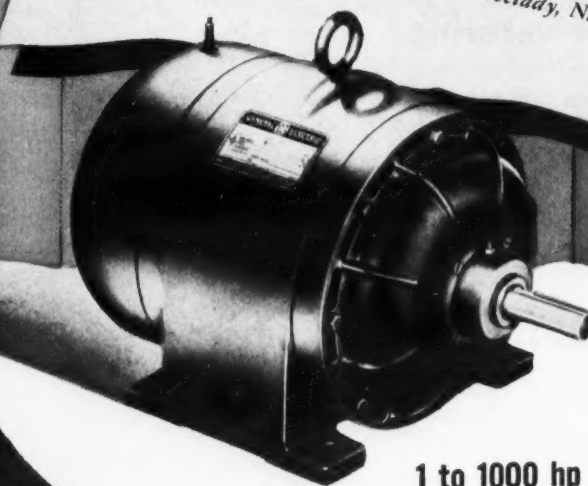
## NEW

### Totally Enclosed TRI-CLAD MOTORS

In 1940, G.E. introduced the Tri-Clad open motor—with emphasis on the feature that industry wanted most in a motor, *protection*. Since then, more Tri-Clads have gone into service than any other integral-horsepower motor.

Today, we are ready with a new line of Tri-Clad motors—*totally enclosed, fan-cooled motors*—built on Tri-Clad design principles in both standard and explosion-proof types.

We believe that these are industry's most dependable motors. They are designed specifically for use in many adverse atmospheres—in iron dust, outdoors, in hazardous areas, and chemical atmospheres. Their scope of application is as wide as the field of industrial motor use. Safeguarded against most sources of motor damage, their longer life and lower maintenance will make them economical motors for use on almost every job. General Electric Company, Schenectady, N. Y.



1 to 1000 hp

**COMPLETE ENCLOSURE  
FOR PROTECTION  
AGAINST DIRT,  
DUST, AND WEATHER**

When inquiring specify CP A4673 . . . see information request blank, pgs. 2-3

Spotlighting a newly developed

## SPRAY NOZZLE

*Delivers solid, non-turbulent stream with maximum force over widest area*

**YOU'LL** do more efficient cleaning and descaling with a nozzle like this. The spray pattern is even. Pressure at the edges of the spray is remarkably close to that at the center.

Developed by Kessler Products Company, Youngstown, Ohio, and sold under the trade name of *Komar*, the unit consists of two parts. The header adapter is cold-rolled steel. The fitted-in nozzle of "R" Monel® provides a high degree of strength... plus resistance to corrosion, erosion and fatigue.

With low-cost *Komar* nozzles in steam degreasers, oil sprays, shower pipes and similar equipment used in descaling, cooling and washing operations, you'll have solid spray streams, free from turbulence, and with maximum impinging force leveled over the widest area.

The International Nickel Company, Inc., 67 Wall St., New York 5, N. Y.

**NICKEL  ALLOYS**

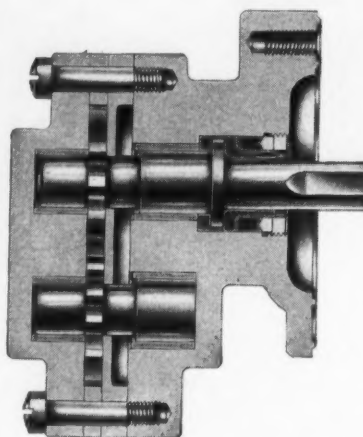
MONEL® "R" MONEL® "S" MONEL® "H" MONEL® "HR" MONEL® INCONEL® NICKEL "L" NICKEL "Z" NICKEL®  
\*Reg. U. S. Pat. Off.

When inquiring specify CP A4674 — see handy form pages 2-3

## Production

### Pumps Handle Light Volatile Liquids or Viscous Materials

*Maintain volumetric efficiency — equipped with automatic compensating wear control*



Pumps have no pockets, threads to impede product; easily taken apart for cleaning

enclosed in a steel armor that will hold against pressure and vacuum so that there is no danger of the product being pumped becoming contaminated.

*Description* — The smallest model, called the Victor,

*Uses* — Handle anything that can be pumped — heavy viscous materials or light volatile oils with a minimum of vapor lock.

*Features* — They maintain volumetric efficiency because they are equipped with an automatic compensating wear control. They have a positive displacement and high vacuum. The shafts are equipped with a self-adjusting seal

## ADDED SAFEGUARD!

## SPARKLESS FLEXIBLE COUPLING

**Body of Tobin Bronze For CHEMICAL INDUSTRIES PAINT, VARNISH PLANTS PETROLEUM REFINERIES, ETC.**

*Wherever static or the possibility of electrical discharges exists*

LOVEJOY

**L-R FLEXIBLE COUPLINGS**



L-R Type "A"  
1/6 to 50 H.P.  
Pat. and Pats. Pend.

Simple, three-piece construction, 2 Tobin Bronze bodies and insulating cushioning spider. Quiet. Requires no lubrication. WRITE for catalog of couplings up to 2500 H.P.

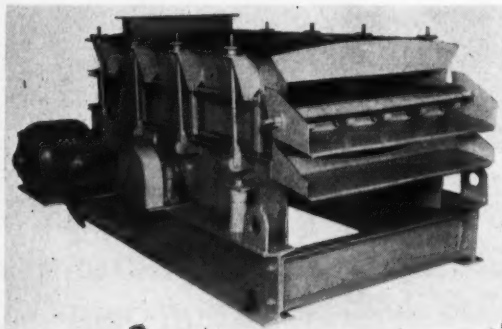
**LOVEJOY FLEXIBLE COUPLING CO.**

5072 West Lake Street,

Chicago 44, Illinois

When inquiring specify CP A4676 — see handy form pages 2-3

## The 100% Sanitary Screen for Sizing and Dewatering



Single Tray Unit

Easily and quickly dismantled for cleaning and then reassembled.

No hidden corners or obstructions.

Totally enclosed discharge spouts or open lips as shown.

188 or 316 Stainless Steel construction when required.

Available in one, two, three or four screen trays, 2' wide and 4', 6', 8', or 10' long.

Write

For recommendations covering your own problems.

**SIMPLICITY ENGINEERING COMPANY**  
DURAND, MICHIGAN

For Canada Waterous Limited, Brantford, Ontario

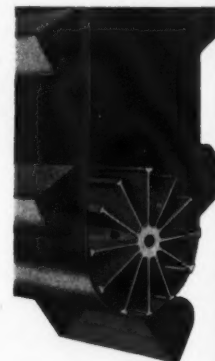
When inquiring specify CP A4675 . . . see information request blank, pgs. 2-3

## BELT LIFE

## INCREASED

50% to 400%

with



## SPROUT WALDRON WING PULLEYS

Look at the illustration . . . it shows plainly why Sprout-Waldron's Wing Type Pulley has come to be known as the Belt Saver Pulley. In handling any material on conveyors, almost always some of the material is carried between the face of the pulley and the pulley side of the belt. The wings of the Belt Saver Pulley eliminate the grinding or crushing action which is common with the conventional type pulley, and the life of the belt is greatly extended.

Handling sticky materials presents a problem as they tend to build up on the solid face of a conventional pulley. The design of the Belt Saver Pulley prevents this condition. No wonder Sprout-Waldron Belt Saver Pulleys are a "must" on the tail end of any belt conveyor or on the boot of any bucket and for the handling of sticky materials.

Write today for catalog listing available sizes.

**SPROUT WALDRON & CO.**

Manufacturing Engineers

MUNCY

PENNSYLVANIA

When inquiring specify CP A4677 — see handy form pages 2-3



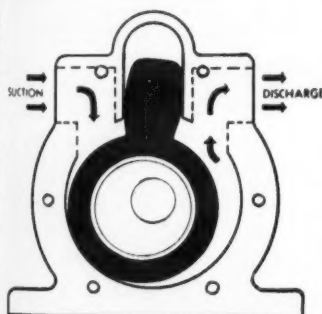
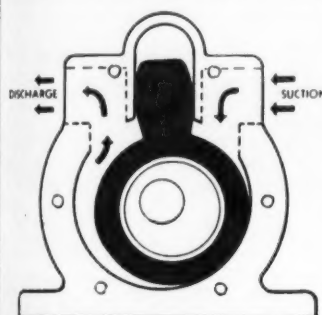
which is intended for equipment installation, needs no lubrication. The other designs, which are called the Commander and Challenger, are equipped with automatic lubrication. The pumps are built with stainless metal unless otherwise specified. As may be seen from the illustration, they are easily taken apart for cleaning, and as there are no pockets or threads to impede the products being processed, the pump is unusually sanitary. These pumps operate under high or low pressure and have a steady non-pulsating delivery. Available in various sizes and capacities. The smallest has a range of 5 to 300 gph; the largest standard pump 1880 to 3765 gph. Other sizes are built on special order.

MARCO CO., Dept. CP, Wilmington, Del.

When inquiring specify CP A4678 — see handy form pages 2-3

## Gearless Pump Designed for Fast Removal of Obstructing Material

*Special bearing requires only water lubrication*



Suction, discharge motion can be reversed

**Uses** — For water, light oil or other liquid circulating service.

**Features** — The pump is equipped with special bearings, which require only water lubrication, eliminating the need for grease cups. No adjustments are needed. All metal is of bronze. Pump can be used in oil, or fresh or salt water.

**Description** — The pump is easily installed. It can be mounted at any angle and operated in either direction with equal efficiency. The opening of the face plate permits quick removal of any obstructing material.

The impeller which is a removable unit,

is of tough resilient material composed of several layers of laminated sections, vulcanized together under great pressure. It enables sandy, muddy or gritty particles to pass without harm to the pump should they get into the water or oil system. Available with single impeller and standard one half inch connection or double impeller with standard one inch connection. The recently announced double impeller one inch model, with built-in external drive shaft and base, has capacity range from 7.5 gallons per minute at 600 rpm to 23 gallons per minute at 1800 rpm. The illustration shows internal view, face plate removed, showing impeller and flow of liquid. Suction and discharge motion can be reversed.

ECO ENGINEERING CO., Dept. 41, 12 New York Ave., Newark, N. J.

When inquiring specify CP A4679 — see handy form pages 2-3

MAY - JUNE, 1946



By developing the necessary analytical and practical operating techniques, Consolidated took the Mass Spectrometer out of the limited research field and made it an effective commercial tool for quantitative and qualitative analysis. The continued development of both the instrument and its application to all analysis problems accounts for the remarkable record of the Consolidated Mass Spectrometer.

**1st IN RESULTS** • The Consolidated Mass Spectrometer is outstanding for control, research and development work, and handles many intricate mixtures which cannot be successfully analyzed by other means. Its thoroughness is shown by the fact that in some cases it has disclosed the presence of unexpected components which were missed by other processes.

**1st IN USE** • The Consolidated Mass Spectrometer has been on the market for 4 years. It is being used by research groups, chemical companies and practically every major oil company. Two of these companies now have 3 instruments each in use.

**1st IN CUSTOMER BENEFITS** • Numerous installations of the Consolidated Mass Spectrometer in widely varying applications provide the following benefits:

1. Provides the solution not otherwise available for many analysis problems.
2. Completes most analyses in less than one hour elapsed time.
3. Analyzes more samples with less man hours per sample than other methods of analysis.
4. Provides lower cost per sample.
5. Provides high order of accuracy.
6. Analyzes gas and light liquid samples from most units in refinery or laboratory.
7. Provides continuous operation with negligible instrument maintenance time.
8. Requires very small sample—200 mm x cc on the standard model, 10 mm x cc with a special introduction system.

Write Department 5-N for Descriptive Literature telling how this industrial tool can save you time and money!

**CONSOLIDATED ENGINEERING CORP.**

620 N. LAKE AVENUE



PASADENA 4, CALIF.

Manufacturers of Mass Spectrometers, Vibration and Strain Analysis and Recording Equipment

When inquiring specify CP A4680 . . . see information request blank, pgs. 2-3

Save thousands of dollars  
worth of lost time, lost motion  
and spoiled work... with

## Swartwout AIRMOVER modern industrial ventilation

You can trace greater efficiency—including reduced spoilage, fewer accidents, *more production*—directly to better elimination of heat, smoke and gases! Swartwout knows how to help you get sufficient air changes in your work rooms by *natural ventilation* to show astounding results.

The Swartwout AIRMOVER—advanced application of air-moving principles to roof ventilator design—speeds unwanted heated air upward with minimum resistance. It's only 32" high, pleasing in appearance, gives you large capacity exhaust economically.

Teamed with AIRMOVER is the Swartwout Industrial Intake Louver—the ideal modern method for providing fresh air from *near floor level*. Avoids the drawbacks of open windows. Completes the *natural ventilation* requirement of *fresh air* to replace outgoing *stale air*. Write for information on AIRMOVER complete natural ventilation.

THE SWARTWOUT COMPANY  
18539 Euclid Ave., Cleveland 12, Ohio



**Swartwout**  
*The Airmover Line*  
EQUIPMENT FOR EFFECTIVE ECONOMICAL  
VENTILATION OF INDUSTRIAL BUILDINGS

When inquiring specify CP A4681 — see handy form pages 2-3

## Production

### Solid Compounds Uniformly Heated Right in the Drum

*Weight of heater allows it to settle rapidly  
in the drum*



Immersion Heater

**Uses** — For heating greases, solid oil and other compounds supplied in 55 gallon drums or similar containers.

**Features** — Uniform heating of the material is secured. An adjustable thermostat limits the operating temperatures if the heater operates unattended.

**Description** — The heater is of rugged construction, using a large circular heating element. Steel risers allow all electrical connections to terminate in a standard conduit box for convenient wiring. An eye-bolt at the top of the assembly permits easy handling. The weight of the heater allows it to settle rapidly in the drum. The large heated area provides uniform heating and eliminates cold regions. Known as the Type DH, this

"Chromolox" electric immersion heater is available for 115 or 230 volt, single phase current in ratings up to 5000 watts. Additional information on request.

EDWIN L. WIEGAND CO., Dept. CP, 7517 Thomas Blvd., Pittsburgh, Pa.

When inquiring specify CP A4682 — see handy form pages 2-3

### Manual Discusses Factors Affecting Choice of Welded Fabrication & Techniques

A new engineering manual entitled, "Tailoring in Metal" discusses the factors affecting the choice of welded fabrication and the techniques of welded design. As stated, the purpose of the manual is to aid engineers and designers decide for themselves if fabrication by welding and the materials made available by this method are applicable to the problem. The factors involved in a decision are cost, weight, strength, appearance, stability, noise, quality and delivery.

Various types of welds are explained, and how they affect static and load values. Of particular interest to the designer is specific information about devices which can be employed to reduce costs and improve construction. The methods are profusely illustrated with diagrams and photographs.

The manual contains data of interest to those concerned with shop maintenance because of the application of welding to such fabrications as gear blanks, pulleys, tanks, frames, housings, breechings, stacks and casings. Copies on request.

UNITED WELDING CO., Dept. CP, Middletown, Ohio.

When inquiring specify CP A4683 — see handy form pages 2-3

## LIFT THE LOAD HIGHER AND FASTER WITH *Northern* HIGH-LIFT LOW HEADROOM ELECTRIC HOISTS

LOOK WHERE THE HOOK GOES



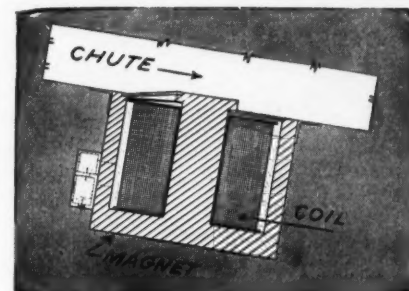
The high hook lift-low headroom feature of Northern Electric Hoists will add 12" to 36" to the working height of your building—without extra expense—without altering the building. This means better use of storage space, easier handling of bulky loads, faster operation because clearances are greater.

Northern Hoists are also superior in strength, lifting power, speed, and handling.

*Northern* WRITE FOR BOOKLET  
ENGINEERING WORKS  
2615 Atwater Street, Detroit, Michigan  
Offices in Principal Cities  
Northern Crane & Hoist Works Limited, Windsor, Canada

When inquiring specify CP A4684 — see handy form pages 2-3

## DINGS Double-Gap SPOUT MAGNETS



afford EFFECTIVE, ECONOMICAL IRON REMOVAL

**DINGS** Double-Gap Spout Magnets are High Intensity separators for removing iron from material passing down a chute. Installed in the chute as shown in the diagram, they hold iron fast below a step in the magnet face. It is practically impossible to dislodge an accumulation of iron until the current is turned off. For automatically discharging the iron an automatic gate can be supplied as an integral part of the magnet. Here's trouble-free, positive, economical tramp iron-removal. Dings also builds a complete line of Magnetic Pulleys and Suspension Magnets. Write for details today.

**Dings Magnetic Separator Co.**

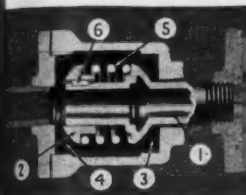
510 E. Smith St., Milwaukee, Wis.

When inquiring specify CP A4685 — see handy form pages 2-3



Can you use a Stuffing Box that's  
**PACKLESS**  
**SELF-OILING**  
**SELF-ADJUSTING**  
**SELF-ALIGNING**

Johnson Joint on rubber mill



• Nipple (1), fastened to roll or drum. Sliding collar (2), keyed (6) to nipple. Carbon graphite seal ring (3) and bearing ring (4) eliminate oiling and packing. Spring (5) is for initial seating only; joint is pressure sealed.

If you have a problem that has to do with getting steam, or liquids under pressure, into rotating machine parts, don't overlook the possibilities of the Johnson Rotary Pressure Joint.

It is being used on Paper Making and Textile machinery, in cold strip steel mills, on machine tools, and for an increasingly wide range of other applications. So completely does it outmode the old style stuffing box that industry has already adopted over 50,000 Johnson Joints in the few years since their development.

Write for complete information

**The Johnson Corporation**

826 WOOD STREET



THREE RIVERS, MICH.

When inquiring specify CP A4686 — see handy form pages 2-3

## NO BREAK-THRU

When you filter through stone!

LeVal Filters support filter-aid on rigid, porous stone.

They have no cloths or pads to break through . . . or to sag and let cloudy filtrate pass. That is why LeVal Filters provide dependable clarification at all times.

LeVal Filters leave no messy cleaning job. Turning a couple of valves backwashes the filter — flushes filter cake to the sewer.

Above is a LeVal Portable Filter Station, complete with motor, pump, precoating tank, pipes, and valves. Other styles and models range from bottling strainers to large filter units, to serve every need of the process industries.

WRITE FOR  
BULLETIN F-103

for complete information on the LeVal filtration principle.

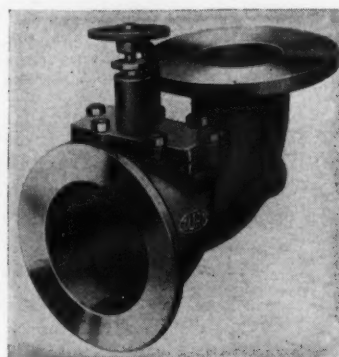
**WHITING CORPORATION**  
LEVAL FILTER DEPT. District Engineers in 26 principal cities  
15667 Lathrop Ave., Harvey, Illinois

When inquiring specify CP A4687 — see handy form pages 2-3

## Production

### Discharge Check Valve Guards Against Line Backsurge

Operated with or without manual control; bodies in various metals



Valve with manual control

Uses — To provide positive protection against the backsurge of discharge lines carrying sludge, steam, waste water and other waste liquids in gravity flow installations.

Description — In order to assure non-fouling of the valve, these units have a swing flap suspended from a floating pin fulcrum to insure positive full surface contact between ground face of flap and flap seat. The knob in the center of the top surface of the swing check flap contacts the valve body roof at only one point when the swing check flap is wide open. This prevents the swing check flap from touching the sides of the valve body and assures free operation of the swing check flap. Location of swing check flap in relation to interior of valve body provides ample protection against sediment blocking the valve. Swing check flap suspended from cover can easily be removed, and replaced.

Discharge check valves may be operated with or without a manual control or with an extension shaft or flexible cable from an access box. The units are hydrostatically tested. Flanges are 50 lb. flat faced and blank or drilled as specified. They are available with 180 degree, 105 degree and 90 degree bodies made of cast bronze, steel, semi-steel, cast iron and alloyed metals for corrosion resistance. Complete information concerning these check valves as they apply to specific individual requirements is available upon request.

J. A. ZURN MFG. CO., Dept. CP,  
Erie, Pa.

When inquiring specify CP A4688  
— see handy form pages 2-3

## BELT IDLERS

For belts 14 to 48 inches wide. The pulleys are sturdy, rugged, built with straight sides to shed dust and rounded corners to prevent injury to the belt. They are evenly balanced and run true insuring long life. Furnished troughed or flat, in standard and many special designs.



## CAR PULLER

A rugged self-contained unit for moving cars about a yard without calling a yard engine. Rope pull of 5,000 lbs is sufficient to haul a 165 ton load on level track, or 100 tons up a 1% grade. Complete details of puller and accessories furnished on request.



## HAND WINCH

Worm geared and self-locking to hold the load in any position, this winch is ideally used for lifting and lowering heavy door, pots, kettles, bins, chutes, etc. Ten sizes are standard, can usually be shipped promptly from stock.



**THE C. O. BARTLETT & SNOW CO.**

6270 HARVARD AVE. • CLEVELAND 5, OHIO

DRYERS, COOLERS, CALCINERS AND KILNS

BOILER PLANT COAL AND ASH HANDLING SYSTEMS

CONVEYORS, CRUSHERS, FEEDERS, SCREENS

When inquiring specify CP A4689 — see handy form pages 2-3

## PNEUMIX ... A GOOD MIXER



PNEUMIX IS SAFE . . . The sparkless, explosion-proof air motor won't stall or burn out. Factory Mutual Laboratories approve it for use with all inflammable materials.

PNEUMIX controlled agitation results in homogeneous batches no matter what changes in viscosity occur during processing.

PNEUMIX Air-Motored Agitator is an asset in any company. Write for complete details today.

ECLIPSE AIR BRUSH CO.  
393 Park Ave. • Newark 7, N. J.

**ECLIPSE**



When inquiring specify CP A4690 — see handy form pages 2-3

## THE NEW ERTEL "Pneumo-Vac" VACUUM BOTTLE FILLER

FILLING SPEED MEASURED IN QUARTS—  
50 BOTTLES PER MINUTE

The new Ertel "Pneumo-Vac" Vacuum Bottle Filler is designed to reduce physical effort. It is operated by a balanced foot valve which allows the operator full use of both hands. Dripping is positively prevented while unit is in operation. Liquid filling height can be accurately and quickly regulated. Fully illustrated bulletin giving floor area, bottle heights, etc., is available without obligation. Write for copy.

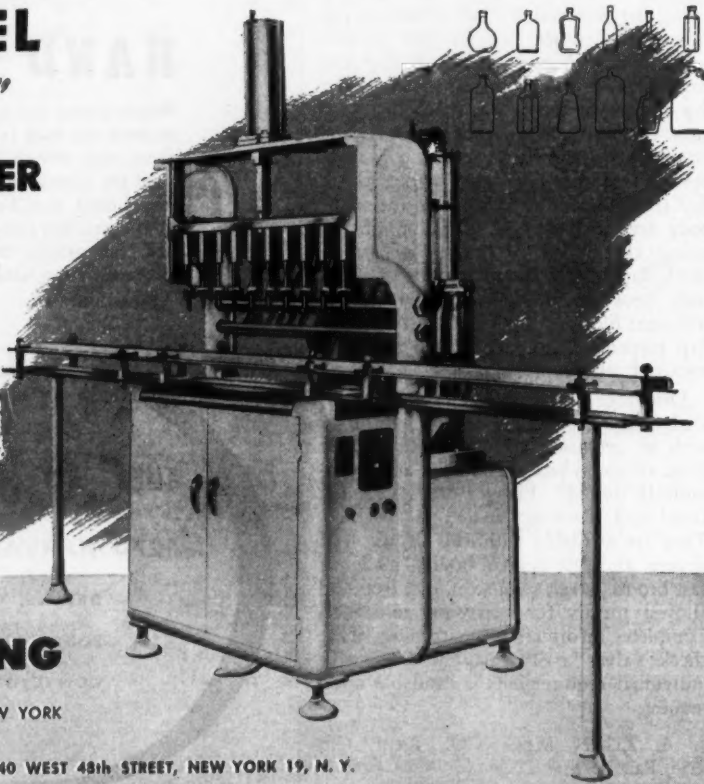


**ERTEL ENGINEERING**  
CORPORATION

KINGSTON

NEW YORK

NEW YORK CITY SALES OFFICE AND SHOWROOM: 40 WEST 48th STREET, NEW YORK 19, N. Y.



When inquiring specify CP A4691 . . . see information request blank, pgs. 2-3

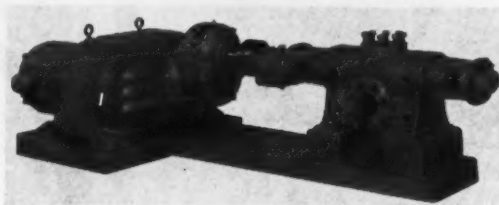
## Production

### New Developments in Balanced Quadruplicate Screw Pump

*Conveniently available for existing pumps*

**Uses** — Designed for pumping viscous liquids such as Bunker C fuel oil, tar, rayon dope, molasses, soap liquids, etc. It is also used in handling thin liquids such as water, alcohol, commercial solvents of various types.

**Feature** — This new construction can be provided on all existing pumps without disturbing present pipe connections or location of the motor.



Balanced Quadruplicate Screw Pump

**Description** — Improvements are demonstrated by the new external bearing pump designed with bracket type anti-friction thrust and line bearings. Separate pedestals with the three point alignment problem and spacing washers are eliminated, providing free expansion of shafts for wide changes in temperatures. Precision pre-loaded anti-fric-

*Specify—*  
**COOPER CERTIFIED  
STAINLESS STEEL  
VALVES**

**... and forget the  
parts that take the punishment!**

COOPER valve Certification applies to all Stainless Steel parts which come in contact with the fluid being handled. Therefore, compliance to your specifications is automatic. You know you will get exactly what you need.

In producing "Certified" valves COOPER registers the analysis of each heat; stamps each casting with its heat number. This new practice assures full protection, because every "Certified" Stainless Steel valve is positively identified. Duplication of analysis is quick. Storage mix-ups are lessened.

Standard types of "Certified" Stainless Steel valves include: Globe, Gate, Y, Check, Needle, Quick-opening. You may obtain certificates on request with each unit specified.

For complete data about the COOPER certification method, write today. Or, if you have a particular valve problem, a COOPER engineer will be glad to assist you.

Sold through largest Stainless Steel distributors in the country. Check with your local distributor.

CA-107

**THE Cooper ALLOY FOUNDRY CO.**  
150 BLOY STREET • HILLSIDE, NEW JERSEY

When inquiring specify CP A4692 — see handy form pages 2-3

**PAYLOADERS  
REPLACE  
MISSING  
MANPOWER**



Why worry about the men who are not to be had? In many process plants, the manpower problem for handling bulk materials has been eliminated with Hough Payloaders. These compact, readily-maneuverable units speedily pick up their loads, hoist them and carry them to nearby or distant points and dump them into trucks, bins or pits. The Model "HA" Payloader, pictured, will load, carry 100' and dump at the rate of 25 tons or more per hour. Note how easily this unit goes in and out of box cars where it is a great time saver. Hundreds of Payloaders are in Service with nearly every nationally known Fertilizer and Chemical Company. Ask for Bulletin 149.



**THE FRANK G. HOUGH CO.**  
Libertyville, Illinois  
"Since 1920"

**HOUGH Payloader SHOVELS**

When inquiring specify CP A4693 — see handy form pages 2-3

CHEMICAL PREVIEW



## Production

ion bearings permit close running clearance between the body bores and the screws. Complete information on request.

H. K. PORTER CO., INC., (Quimby Pump Div.), Dept. CP, Pittsburgh, Pa.

When inquiring specify CP A4694 — see handy form pages 2-3

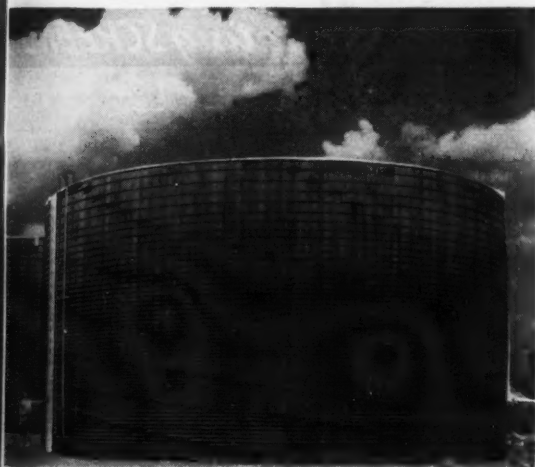
★

## Wood Tanks in 4 General Types

*Advantages in resistances to pitting and in lower evaporation losses; suitable for many industrial requirements*

**Uses** — In "sour oil districts" wood tanks are used with distinct advantage. This is demonstrated in their performance in some districts where pitting through the tank in a year or less is encountered. The wood tanks have been a solution to the oil storage problem. The tanks shown in the accompanying illustration replaced steel tanks used to store water for a large pumping station and gasoline plant.

**Features** — All the various tanks, except the open top tanks, are kept swelled tight by water which is kept on the tank deck and fed by grooves into every stave joint.



GIANT WOOD TANKS FOR WATER STORAGE

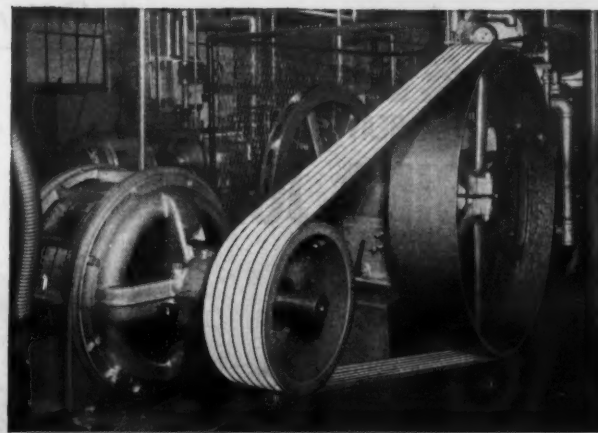
**Description** — This complete selection of wood tanks includes four general types: vapor pressure tanks, gas tight tanks, water grooved deck tanks and open top water tanks. The tanks shown in the picture and used for water storage are 46 feet in diameter and 24 feet high and constructed of 3 inch California Redwood. Tanks used for drinking water are usually made of cypress. Open top wood tanks are usually made in sizes ranging from 30 barrels to 2000 barrels capacity. The vapor pressure, gas tight and water grooved tanks are furnished in sizes from 50 barrels to 1600 barrels capacity. The vapor pressure or water grooved tanks can be converted into treating tanks by adding Redwood baffles and flume. Other special types of treating tanks furnished are provided with intermediate heads, or trays supporting thick layers of hay ("hay tanks") or gravel ("gravel tanks").

BLACK, SIVALLS & BRYSON, INC., Dept. CP, 7500 E. 12th St., Kansas City, Mo.

When inquiring specify CP A4695 — see handy form pages 2-3

MAY - JUNE, 1946

*it's  
worth knowing  
why this is true*



## Your STANDARD Gates Vulco Ropes Are Today OUTPERFORMING Any V-Belts Ever Built Before!

Early in the war it was found that our Army's tanks, tractors and self-propelled big guns in combat service required V-belts far superior in strength and durability to any V-belts ever built before. Gates developed these greatly superior V-belts through intensified, specialized research — and here is why this fact is now important to YOU:—

*Here is why—*

Every improvement developed by Gates for U. S. Combat Units—and many later improvements, also—have been added, day by day, to the quality of the Standard Gates Vulco Ropes which have been delivered to you.

That is why, even while the war was still in progress, you were getting in your Standard Gates Vulco Ropes a product built to far higher service standards than any V-belts ever built by anyone before the war.

And that is only half the story. Through continuing specialized research, the service qualities of these superior Gates Vulco Ropes have been still further improved as all of Gates facilities and

energies have been returned to the service of industry.

These are the simple reasons why the standard Gates Vulco Ropes you are getting today are delivering far better service than any V-belts ever built before!

All Gates  
V-Belts are  
Built With



THE MARK OF SPECIALIZED RESEARCH

## THE GATES RUBBER COMPANY

Engineering Offices and Jobber Stocks in All Large Industrial Centers

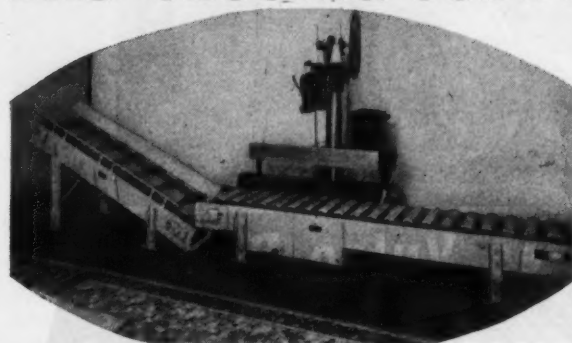
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## GATES VULCO ROPE DRIVES

CHICAGO 6, ILL., 549 West Washington. NEW YORK CITY 3, 215-219 Fourth Avenue. ATLANTA 3, GA., 521 C. & S. Nat'l Bank Bldg.  
LOS ANGELES 21, CAL., 2240 E. Washington Blvd. DENVER 17, COLO., 999 S. Broadway. DETROIT 2, MICH. 223 Boulevard Bldg.  
PORTLAND 9, ORE., 333 N.W. 5th Ave. DALLAS 2, TEXAS, 1710 N. Market St. SAN FRANCISCO 3, CAL., 170 Ninth St.

—When inquiring specify CP A4696 . . . see information request blank, pgs. 2-3—

# Engineered FOR HEAVY DUTY BAG CLOSING JOBS!



**CLASS 20500.** Here is a complete, engineered unit that meets every requirement for many plants. Choice of controls, conveyors, and sewing heads. For information on this and other Union Special units, ask for Bulletin No. 200. Union Special pioneered the use of filled bag closing machines in industry by building equipment especially designed to do the job better . . . faster . . . more economically. TODAY Union Special is your best assurance against rising costs . . . tight production schedules . . . and plant interruptions. Take advantage of Union Special's long experience in solving filled bag closing problems. **UNION SPECIAL MACHINE COMPANY, 442 N. Franklin St., Chicago 10, Illinois.**



## By Union Special

When inquiring specify CP A4697 — see handy form pages 2-3

## Production

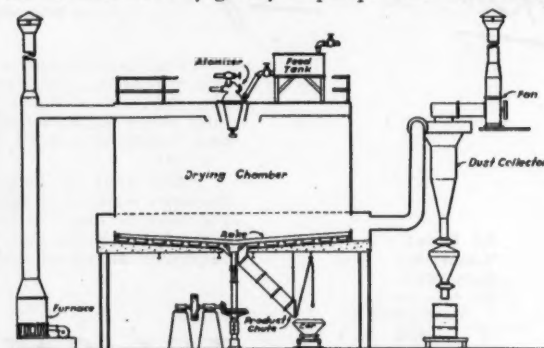
### Instant Drying System

*Low cost drying of chemicals, soaps, pigments, etc.*



Atomizer

**Description** — The Instant Drying System consists of an electrically-driven atomizer suspended in a cylindrical chamber into which hot air is admitted from a heater using gas, oil, coal or waste gases. The wet material is fed onto the atomizer bowl by gravity or pump. Atomization takes



Atomizer installed in typical application

place in a horizontal plane near the top of the chamber. The particles thrown off the bowl are so small that in the aggregate a gallon of material would present an area of thousands of square feet for drying. Each particle thrown off is protected by a film of moisture and on account of the latent heat of evaporation the dried particle is cooled below the temperature of the drying gases. The dried particles drop to the exit zone of the chamber where they are exposed only to low temperatures which insure against the impairing characteristics of the material. A single atomizer will atomize from 2 to 20 gallons per minute.

**INSTANT DRYING CORP., Dept. CP, 101 Park Ave., New York 17, N. Y.**

When inquiring specify CP A4698 — see handy form pages 2-3

## An L-B LIQUID VIBRATING SCREEN Increased Separating Efficiency

# 200%

*In the Plant of the  
American Felt Co.*

A Link-Belt Liquid Vibrating Screen shown here in The American Felt Company's plant, Glenville, Connecticut, increased efficiency in the removal of waste solids 200% over a previous method of removal.

Whatever your problem in separating liquids and solids, discover what Link-Belt Vibrating Screens can do for you in your plant. Removal of unwanted solids — recovery of solids for conversion into profitable products — dewatering of foods and chemicals — all these are being done by Link-Belt Liquid Vibrating Screens, faster and with reduced waste of materials. L-B Screens are available in a number of standard sizes and can be built with corrosion resisting metals when desired. Write for Book No. 1977 today.

**LINK-BELT COMPANY**  
2045 West Hunting Park Ave., Philadelphia 40  
Offices in principal cities 10,253

## LINK-BELT Vibrating SCREENS

When inquiring specify CP A4599 — see handy form pages 2-3

## Farris GIVES YOU THE FIRST LOW-COST

### All-Bronze RELIEF VALVE!

**FARRIS UTILITY RELIEF VALVE, Type 1840.**  
Sizes 1/2" to 2 1/2", Male Inlet only.

Here is the FARRIS Utility Pop Relief Valve, type 1840. If you build or use equipment handling air, steam, gas or liquids—at or below 250 lbs. steam pressure—installation of this valve cuts your costs significantly. This valve has all the advantages of all-bronze construction—yet is priced low. Advanced FARRIS production techniques made this possible.

The FARRIS type 1840 gives long service. And it is built with pre-set pop and blow-down.

Complete details of the type 1840 are in the new FARRIS Catalog. Write for this catalog today and learn how you can profit from other advanced FARRIS design features such as higher lift, precision alignment, and fewer parts.

**FARRIS ENGINEERING COMPANY**

350 Commercial Ave.  
Palisades Park, N. Y.

# Farris

**SAFETY and RELIEF VALVES**

FE-527

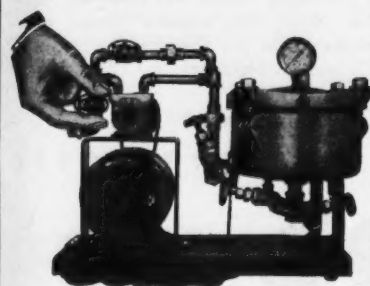
When inquiring specify CP A4700 — see handy form pages 2-3



## MICROSCOPIC FILTRATION SPARKLER HORIZONTAL PLATE METHOD

### Crystalline and Colloidal Precipitates Removed

On Sparkler's Horizontal Plates the diatoms float into position naturally and evenly, forming a cake of uniform density and thickness. Your solutions are filtered as through a pure silica sieve of uniformly micro-sized mesh. Sediment, suspended particles, haze and turbidity are removed and your solution is given a brilliant polish.



MODEL 8-3  
PILOT PLANT FILTER

By varying the grade of diatomaceous earth, all your liquids — from heavy oils to light alcohols — may be sharply, conveniently and quickly filtered. When the proper filtration procedure for your application has been set up, you may expect high flow rates and uniformly high-quality filtrate. For these reasons Sparkler Filters are specified, time after time. May we serve you?

**SPARKLER MFG. CO.**  
243 Lake Street  
MUNDELEIN ILLINOIS



When inquiring specify CP A4701 — see handy form pages 2-3

### There's a difference between COMPACTNESS and SPACE ADAPTABILITY...



The **MULTICLONE**  
has BOTH!

IN SELECTING dust recovery equipment, every foot of space saved is that much more valuable area available for other equipment. And the compactness of the equipment you select is just one of several ways to save plant space. Equally important is the adaptability of the equipment to space limitations within an existing plant.

And this is how the MULTICLONE makes two-way savings in space: The MULTICLONE itself is unusually compact, requiring as little as 1/6 the floor space, 1/4 the cubic space of other units of comparable performance.

In addition, the shape of the MULTICLONE is readily adaptable to various space requirements and can be varied to fit odd-shaped or restricted areas that would otherwise be waste space.

For this reason you can fit the MULTICLONE into unbelievably small spaces, thus saving valuable plant area. But space-saving is just one of many MULTICLONE advantages. It is unusually efficient...has no high-speed moving parts to maintain, no screens to clean or replace...is simple to install, easy to service...and has many other important advantages.

Get the full story by  
sending for this  
MULTICLONE  
booklet!



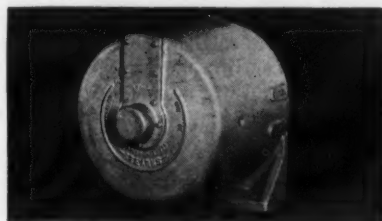
**WESTERN  
Precipitation  
CORPORATION**  
ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR  
COLLECTION OF SUSPENDED MATERIAL FROM GASES & LIQUIDS  
Main Offices: 1023 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA  
CHRYSLER BLDG., NEW YORK 17 • 1 LaSALLE ST. BLDG., 1 H. LaSALLE ST.,  
CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA  
PRECIPITATION CO. OF CANADA, LTD., DOWNSVIEW SQ. BLDG., MONTREAL

When inquiring specify CP A4702 — see handy form pages 2-3

## Production

### Magnetic Disc Brake

For applications up to 100 HP  
motor driven loads



Magnetic disc brake

**Uses** — This magnetic disc brake is designed for use on applications up to 100 HP motor driven loads.

**Features** — Simplified design provides easy replacement of any part where necessary without disturbing the brake assembly.

**Description** — This larger size (Series 1300) brake can be supplied in either floor or mounted types and for either alternating or direct current. This addition augments the other brakes produced by this company — the Series 800 and 1000.

STEARNS MAGNETIC CO., Dept. CP,  
Milwaukee 4, Wis.

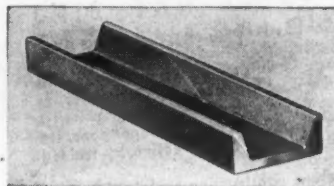
When inquiring specify CP A4703  
— see handy form pages 2-3

### Stainless Steel Channels

Attractive finish, high tensile  
strength, great resistance

**Uses** — These stainless steel channels are an addition to the maker's line of steel ingots, billets, bars and shapes. The new product has broad application in metal fabricating.

**Description** — The channels are produced hot rolled, annealed and pickled in A.I.S.I. Types 302, 304 and 316. Sizes

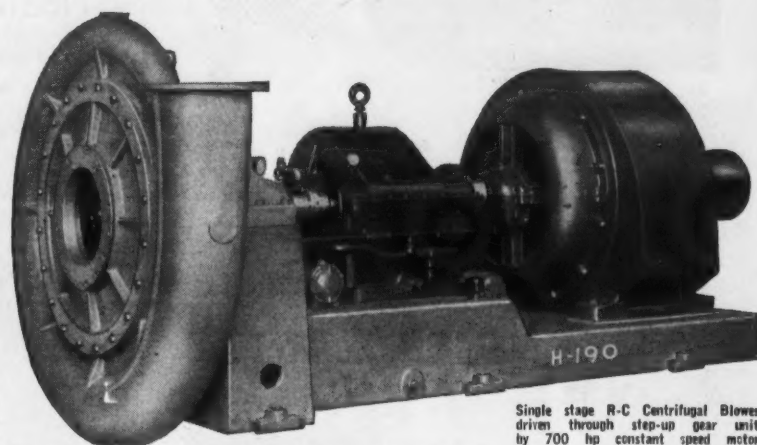


Stainless steel channel

are from 3/4" x 3/8" x 1/8" to 2 1/2" x 3/8" x 1/4" in any length desired. They have attractive finish, high tensile strength and great resistance to corrosion and heat.

JOSLYN MFG. & SUPPLY CO., Dept.  
CP, Fort Wayne, Ind.

When inquiring specify CP A4704  
— see handy form pages 2-3



Single stage R-C Centrifugal Blower,  
driven through step-up gear units  
by 700 hp constant speed motor.

FOR ANY AERATING JOB

CALL ON R-C

# dual-ability



Every revolution of the twin impellers in R-C Rotary Positive Displacement Blowers delivers a predetermined quantity of air, regardless of varying pressure.



Where Centrifugal type blowers offer advantages, you'll find R-C units ready to serve you with fine performance given by excellent modern design.

● You'll get the exact results you want when you turn over your aeration or agitation jobs to Roots-Connorsville Centrifugal or Rotary Positive Displacement Blowers.

**Want extreme purity?** Air comes from R-C Blowers as clean as it goes in, because there's no internal lubrication.

**Is constant volume or constant pressure important?** You'll get the characteristics that fit your requirements.

**Does operating cost count?** You'll like the low power cost per cubic foot which is a basic advantage of R-C Blowers.

All these benefits come from R-C dual-ability, which provides either Centrifugal or Rotary Positive Blowers, with simple, sturdy construction that will give you long years of profitable operation. Ask our engineers to help you with aeration or agitation problems. No obligation, of course.

ROOTS-CONNERSVILLE BLOWER CORP.

One of the Dresser Industries

605 Richland Avenue, Connorsville, Indiana



**BLOWERS FOR EVERY NEED**

ROTARY POSITIVE AND CENTRIFUGAL BLOWERS • EXHAUSTERS • BOOSTERS  
LIQUID AND VACUUM PUMPS • METERS • INERT GAS GENERATORS

When inquiring specify CP A4705 — see handy form pages 2-3

PATTERSON-KELLEY  
Heat Exchangers  
AND  
Process Equipment

IF IT'S AN  
*Aluminum*  
UNIT  
YOU NEED...

We have two qualifications to offer in connection with aluminum equipment in the pressure vessel and heat-transfer group:

1...Years of pre-war as well as war experience with this useful metal.

2...Years of experience in the design as well as construction of many types of process units.

This combination is not too prevalent in the equipment manufacturing field. It is assurance to you that your equipment will be soundly constructed and that it will be properly designed, should you want the help of our engineers.

Considering that we are well-experienced with aluminum and know heat-transfer equipment and pressure vessels, why not call on Patterson-Kelley to help in connection with aluminum equipment you require for processing?



THE PATTERSON-KELLEY Company, Inc.

120 WARREN STREET, EAST STROUDSBURG, PA.  
BOSTON 14, 96-A Huntington Avenue • NEW YORK 17, 101 Park Avenue  
PHILADELPHIA 3, 1700 Walnut Street • CHICAGO 4, Railway Exchange Building  
Representatives in All Principal Cities 5-PK-2

When inquiring specify CP A4706 — see handy form pages 2-3

## Production

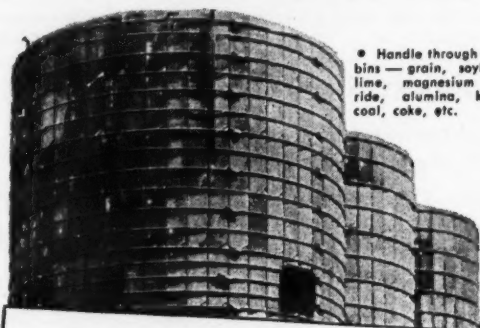
### Electric-Propelled Hand Tractor

Meets requirements for smaller, more maneuverable unit; features finger-tip control

Uses — This electric propelled hand tractor is for services requiring a towing unit that is smaller and more maneuverable than standard types. Test models were used to advantage in metals plants during the war in packing up separate orders from warehouses and hauling them to



Hand tractor pulls 6000 lb. trailer load scattered points throughout the plant or assembly line; towing a number of trailers in tandem, etc.  
Features — Equipped with front wheel drive. Forward



• Handle through N & F bins — grain, soybeans, lime, magnesium chloride, alumina, kaolin, coal, coke, etc.

### BIG FOOD AND CHEMICAL PLANTS ERECT N&F BINS

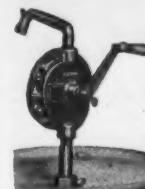
Storage and simplified handling of flowable bulk materials can be readily solved by installing N & F bulk storage bins and suitable conveyors. Many such plants have in the past four years erected hundreds of N & F super-concrete stave bins—on high priority. Any capacity. Any type conveyor. Super-concrete stave or monolithic types. Fast erection by trained crews. Guaranteed.

Super-concrete stave construction explained in 1946 catalog. Write for one.

THE NEFF & FRY COMPANY  
CAMDEN, OHIO

When inquiring specify CP A4707 — see handy form pages 2-3

## BLACKMER ROTARY PUMPS



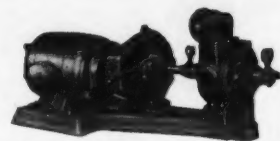
are COST CUTTERS!

Both HAND PUMPS and POWER PUMPS are

### SELF-ADJUSTING FOR WEAR

"Bucket Design" swinging vanes automatically compensate for wear. When the "buckets" finally wear out, a simple replacement job restores the pump to normal capacity.

This means  
LOWER PUMPING COSTS



Write for Bulletin 307 "Facts about Rotary Pumps"

### BLACKMER PUMP COMPANY

1840 Century Avenue Grand Rapids 9, Michigan

### POWER PUMPS - HAND PUMPS EZY-KLEEN STRAINERS

When inquiring specify CP A4708 — see handy form pages 2-3



### This GATE VALVE MAKES ASSURANCE DOUBLY SURE

• Double rotating wedges provide droptight closure and long life under severe operating conditions. Precision construction, superfine machine finished seating surfaces. Available in wide range of corrosion resistant alloys. If you handle corrosive fluids and vapors, investigate this valve, Aloyco Gate Valve No. 111.

### DOUBLE VALVE EFFECT!

If one disc leaks — other can still SEAL

Repair Without  
Special Tools  
or Jigs



Deposit weld metal on ball to restore original contact dimensions when re-seating is desired. Ball and socket provide gripping surface for re-seating in lathe.

ALOYCO

Stainless Steel  
VALVES and FITTINGS

GATE VALVES • GLOBE VALVES  
Y VALVES • CHECK VALVES  
LEVER THROTTLE GATE VALVES  
TANK VALVES  
SCREWED FITTINGS  
FLANGED FITTINGS  
GAUGE GLASS FITTINGS

ALLOY STEEL PRODUCTS COMPANY, INC.  
1000 WEST ELIZABETH AVENUE — LINDEN, NEW JERSEY

When inquiring specify CP A4709 — see handy form pages 2-3



## Production

and reverse drive controls are push-button operated from drive handle. Two forward and two reverse speeds are controlled by the vertical angle of the guide handle. Drive brakes are applied by return of the drive handle — which springs upward automatically when released — to upright position.

**Description** — The unit is equipped with a heavy-duty bumper plate for pushing and a coupler is available for towing operations. This "Transtractor" will push or pull a 6,000 pound trailer load all day or up to 20,000 pounds intermittently, depending upon plant conditions. Fingertip control enables one man to handle any size or type of load with facility. Standard equipment includes a battery capable of eight to ten hours operation. A portable cabinet plug-in charging unit can be supplied.

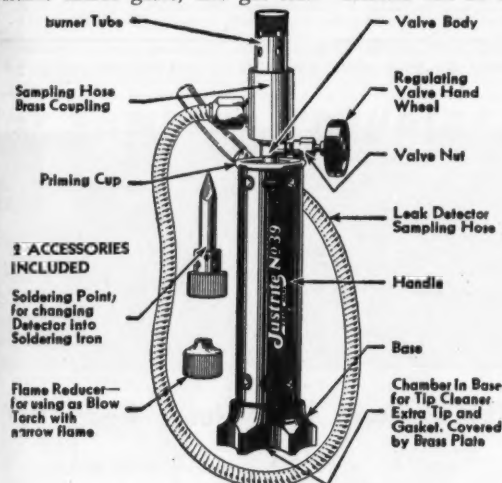
AUTOMATIC TRANSPORTATION CO., Dept. CP,  
109 West 87th St., Chicago, Ill.

When inquiring specify CP A4710 — see handy form pages 2-3

## Leak Tester and Soldering Iron

*For use on refrigerant systems using Freon and other non-combustible halide gases*

**Uses** — Designed primarily for detecting leaks in refrigeration systems using Freon, Carrene, and other non-combustible halide gases, this gas leak detector can be used



LEAK DETECTOR AND ACCESSORIES

also in installation work for soldering connections or wiring and for sweating small joints.

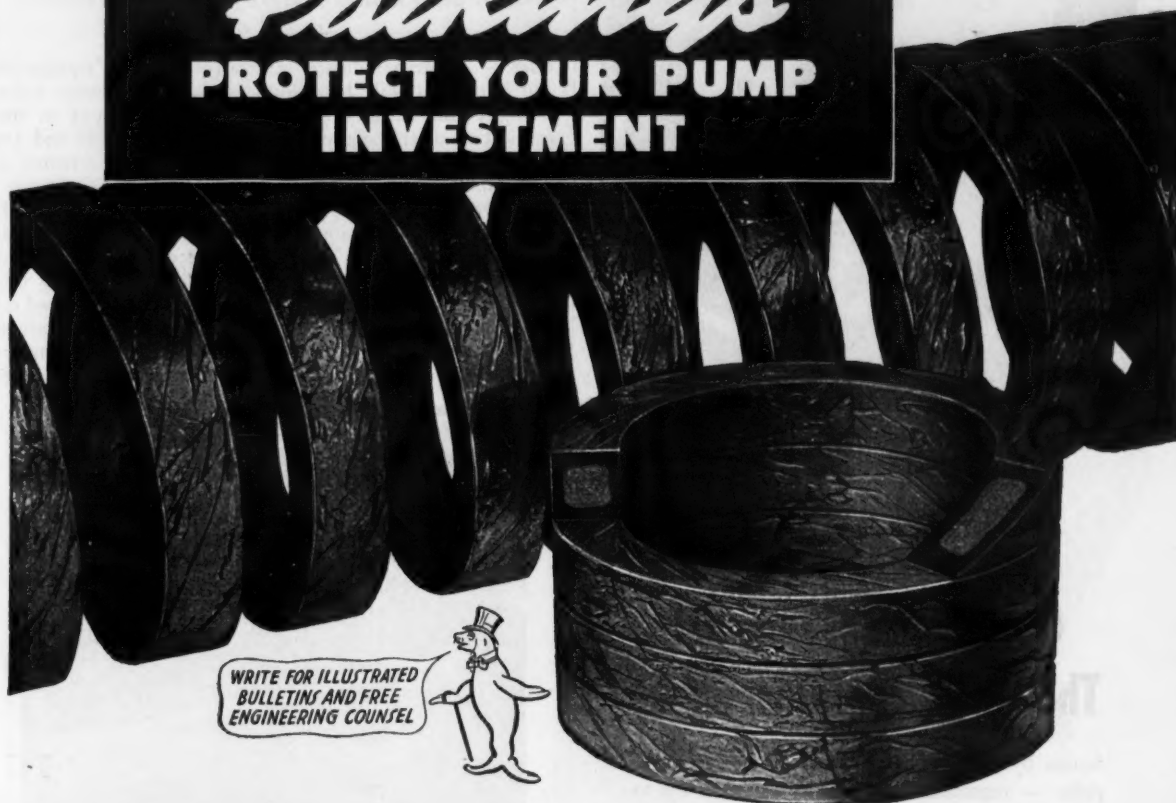
**Description** — To detect leaks in a defective refrigerant gas line, the sampling hose is passed over the pipe system. When gas is encountered, the flame from the burner tube is turned to a bright blue color, since the atmosphere drawn in through the tube is heavily charged with non-combustible gas. By passing the hose back and forth over the system and observing the flame, leaks can be located readily. The detector may be used as a soldering iron when the sampling hose is detached and the soldering point is screwed on the end of the burner tube. The flame reducer which is also used on the end of the burner tube, is used when a blow torch effect with a narrow flame is desired.

JUSTRITE MFG. CO., Dept. CP, 2061 Southport Ave., Chicago, Ill.

When inquiring specify CP A4711 — see handy form pages 2-3

MAY - JUNE, 1946

# DURAMETALLIC *Packings* PROTECT YOUR PUMP INVESTMENT



## The DURAMETALLIC "Twist"...

L-o-n-g uninterrupted runs are assured when you specify DURAMETALLIC—the original twisted, flexible, lubricated metallic packing. 1 It is processed to retain lubrication. 2 It distributes frictional load over several diagonally wrapped metal foil sheets. 3 It provides readier response to gland pressure. 4 It is especially designed to meet your specific need.

DURAMETALLIC



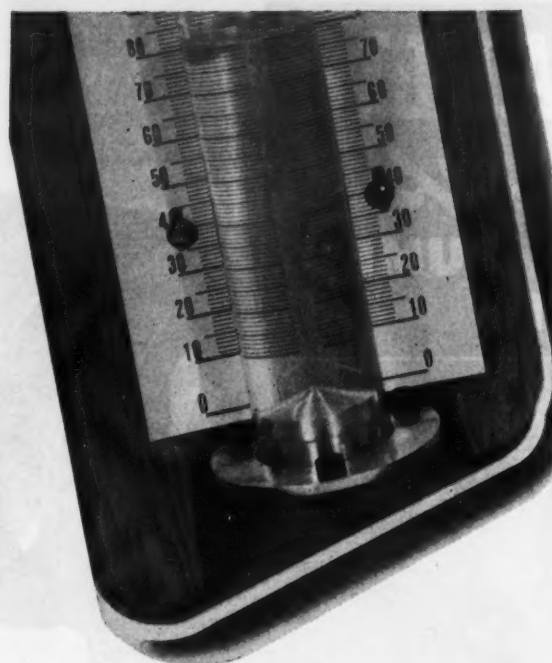
CORPORATION

KALAMAZOO

MICHIGAN

CHICAGO • DALLAS • DETROIT • HUNTINGTON, W. VA. • HOUSTON • KANSAS CITY, MO. • LOS ANGELES • MONTREAL  
NEWARK • NEW ORLEANS • PITTSBURGH • ST. LOUIS • SAN FRANCISCO • SEATTLE • TULSA • YOUNGSTOWN, O.

When inquiring specify CP A4712 . . . see information request blank, pgs. 2-3



## SCALES

### One Or a Thousand The Cost Is Reasonable

Scales by our special process at an attractive price — regardless of quantity — even up to 100" long. Lineal scales of plastics and special materials can be had individually calibrated.

These scales are outstanding in accuracy — being made from a machine divided master scale (or individually calibrated). Scientific equipment and skilled personnel insure this quality. The easy-to-read feature characterizes all Maymer scales.

#### Yes, Name Plates, Too

We make name plates of engraved lamacoid — distinctive in appearance and reasonable in cost. Whatever your needs — scales, indicators, dials, name plates — in whatever quantity — it will pay you to get our prices.

# MAYMER

## CORPORATION

10896 BERE A ROAD CLEVELAND 2, OHIO

When inquiring specify CP A4713 — see handy form pages 2-3

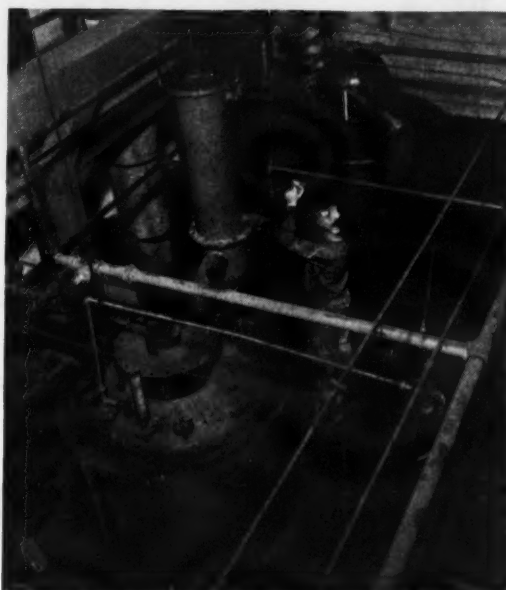
## Production

### High Quality, Pale, Drying Oils Produced Without Discoloration

*Nickel alloy kettles process fatty acids containing linseed oil*

**Uses** — Modern industrial chemistry calls for equipment and parts that will have high corrosive resistance, extra strength and hardness. Nickel alloys, employed in the fabrication of this equipment, have these qualities and are available in a wide range of standard items . . . whether it be a 10,000 gallon tank or a very small spring.

**Description** — The cover for this issue of **CHEMICAL PREVIEW** shows an installation of direct oil fired varnish oil units. Fatty acids containing linseed oil are processed in these kettles to produce high quality, pale, drying oils for varnish manufacture. Fatty acids containing linseed oil are processed under a partial vacuum and in a carbon dioxide atmosphere. Maximum operating temperature is 575° F. and can be held at this temperature without danger



DIRECT OIL FIRED VARNISH UNITS

of product discoloration due to overheating. Inconel is used to prevent discoloration which may come in reaction of certain metals with linseed oil at elevated temperatures. Kettles shown have been in service for six years and show no signs of deterioration. The Petroleum industry puts nickel alloys to work in all phases of processing including gasoline purification equipment and topping towers. Large scale purity in soap manufacture is achieved in Monel lined kettles. High purity, iron-free caustic soda is produced in a triple effect unit in which the evaporator shell is made of nickel-clad steel. These represent only a few of the many applications for these nickel alloys. Many types of nickel and nickel alloy parts, which were specialty products, are now regularly manufactured as standard. Over 150 items are listed in a booklet which will serve as a handy listing of suppliers of nickel-alloy parts and accessory equipment. In it is included the name of the manufacturer and a description of each product.

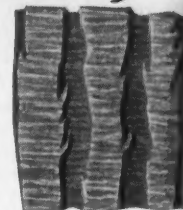
THE INTERNATIONAL NICKEL CO., INC., Dept. CP, 67 Wall St., New York 5, N. Y.

When inquiring specify CP A4714 — see handy form pages 2-3

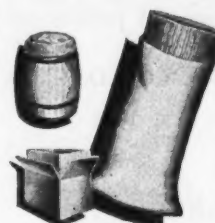
## Stop Liner Breakage!



Crinkled and Pleated



### THEY S-T-R-E-T-C-H IN EVERY DIRECTION



**BIG NEWS** for users of liners. Chase C. & P. Liners are crinkled for vertical elasticity and pleated for horizontal elasticity. It's the protective feature which provides plenty of flexibility in all directions! Result: no more broken liners nor costly damage to contents due to liner failure or breakage.

Write today. Let us tell you more about Chase Crinkled and Pleated Liners—it's the better liner that actually costs no more!

### CHASE BAG CO.

GENERAL SALES OFFICES,

309 WEST JACKSON BLVD., CHICAGO 6, ILL.

BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MEMPHIS • BUFFALO • ST. LOUIS • NEW YORK  
CLEVELAND • MILWAUKEE • PITTSBURGH • KANSAS CITY • MINNEAPOLIS • CINCINNATI  
PHILADELPHIA • NEW ORLEANS • ORLANDO, FLA. • SALT LAKE CITY • OMAHA • PORTLAND, ORE.  
REIDSVILLE, N. C. • HARLINGEN, TEXAS • CHAGRIN FALLS, O. • HUTCHINSON, KAN. • WINTER HAVEN, FLA.

When inquiring specify CP A4715 — see handy form pages 2-3



### This Armored Floor Never Wears Out!

Hendrick's Mitco Armorgrids add great strength and rigidity to floors, platforms, ramps and driveways subject to shock, grinding loads and continuous wear. Floors of cement, asphalt, mastic or other compositions never require replacement when reinforced with Mitco.

Mitco Armorgrids are completely fabricated units, requiring no bolts, rivets or assembly work — and unlike other floor armorings do not depend on fill for development of full strength. Write for Mitco Booklet today.

Perforated Metals  
Perforated Metal Screens  
Architectural Grilles  
Mitco Open Steel Flooring  
"Shur-Site" Treads and  
Armorgrids. Sales Offices in Principal Cities

## HENDRICK

Manufacturing Company  
32 DUNDAFF ST., CARBONDALE, PA.

When inquiring specify CP A4716 — see handy form pages 2-3



## HUNDREDS OF INDUSTRIES Depend on SPERRY FOR FILTRATION

Almost all of today's complex manufacturing processes require filtration for separating solids and liquids, for clarifying, bleaching, thickening, purifying. Adhesives, alcoholic liquors, alkaloids, cosmetics, disinfectants, dyes, fuel oils, gums, insecticides, paints, rayons, soaps, solvents, waxes — filtration plays an important part in the manufacturing of these and hundreds of other products.

And in the development of filtration equipment and filtration methods to meet all these varied needs, Sperry has played an important part. More and more manufacturers have been turning to Sperry, taking advantage of the specialized skill of Sperry engineers, of their wide experience in industrial filtration.

If you have a filtration problem, why not discuss it with our engineers? . . . there is no obligation.

### D. R. SPERRY & CO., Batavia, Ill.

Filtration Engineers for Over 50 Years

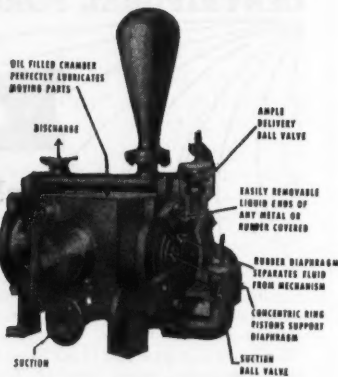
Eastern Sales Representative: Henry E. Jacoby, M. E.,  
205 E. 42nd Street, New York 17. Phone: MURRAY HILL 4-3581

Western Sales Representative: B. M. Pilshasy,  
1033 Merchants Exchange Bldg., San Francisco 4, Calif. Phone: DO 0375

When inquiring specify CP A4717 — see handy form pages 2-3

## GOT PUMPING TROUBLES?

Here's Why  
SHRIVER  
DIAPHRAGM  
PUMPS  
Can End  
Them



**NO PACKINGS  
NO LEAKAGE  
NO  
CONTAMINATION  
NO CORROSION  
OR WEAR OF  
PUMP MECHANISM**

Write for  
Bulletin No. 121

The material pumped — no matter how abrasive, corrosive, viscous or heavy — never gets a chance to injure the moving parts. The liquid ends can be made of any metal or with any covering required to withstand attack. . . This double acting, reciprocating pump delivers 1 to 100 g.p.m. at pressures to 100 p.s.i. It's the pump for tough materials and low cost operation. — Get Bulletin 121.

**T. SHRIVER & COMPANY, Inc.**  
846 Hamilton St. Harrison, N. J.

When inquiring specify CP A4718 — see handy form pages 2-3

## Production

### Cotton Glove Guard

Steel reinforced and steel stitched



Guard held by tape

**Uses** — For workers who must handle sharp, jagged small castings, stampings etc. and who regularly use the standard cotton gloves, this recently introduced leather pullover guard for finger or thumb as needed offers comfort and protection.

**Description** — As cotton gloves are still hard to get this leather pullover guard can be used to particular advantage. The guard is steel re-inforced and steel stitched, assuring long wear and reliable protection against cuts. The guard may be reversed as it is reinforced on both sides. It is held firmly on the cotton gloves by means of adjustable tape at wrist end as shown in the illustration. Complete information concerning this guard is available on request.

INDUSTRIAL GLOVES CO., Dept. CP,  
Danville, Ill.

When inquiring specify CP A4719  
— see handy form pages 2-3

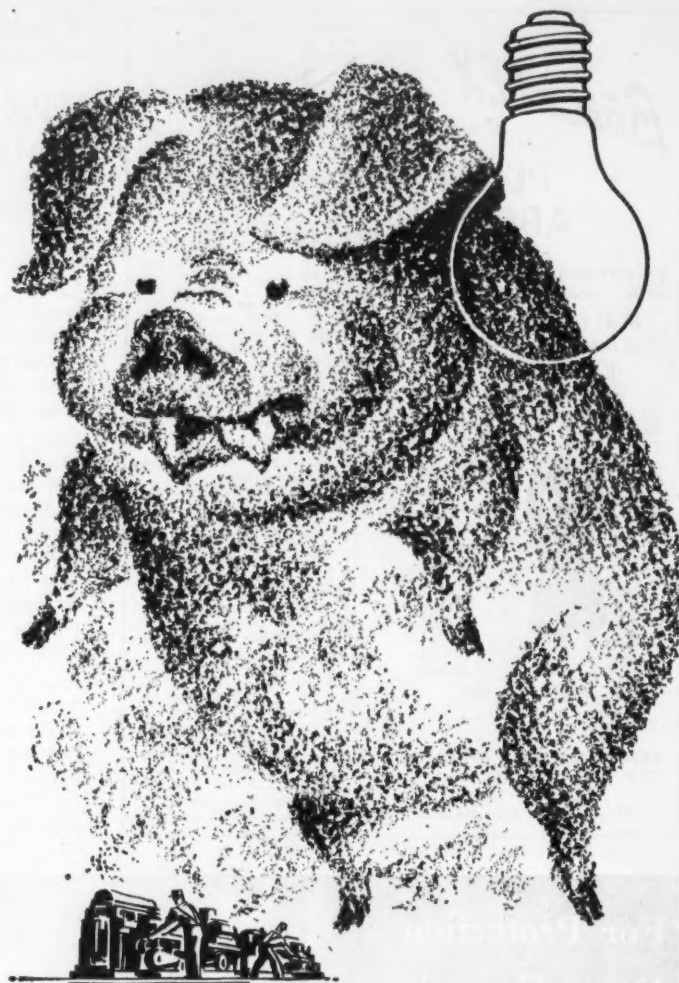


### Compressors 15-30 HP

Stationary compressor that is especially suitable for smaller industries or as supplementary equipment to present units is subject of a new illustrated bulletin. These WL — 70 Unitairs are available in sizes from 15 to 30 hp, 96 to 233 cfm displacement, for air pressures from 30-125 lbs. per sq. in. The center pages of the bulletin are devoted to sectional photos in color showing cylinders, pistons, driveshaft construction and design. These compressors need no water supply. Complete air cooling is provided. A four blade fan is v-belt driven from the crankshaft. A built-in aftercooler materially lowers discharge air temperature. The number of this Bulletin is A-34.

SULLIVAN MACHINERY CO., Dept. CP,  
Michigan City, Ind.

When inquiring specify CP A4720  
— see handy form pages 2-3



## Is DUST Hogging the Light You've Paid For?

DUST will, and DOES, hog the light you've paid for. At the same time he's stealing light, the DUST HOG soils your products, sabotages your machines and motors, decreases worker's efficiency, spoils paint jobs, increases maintenance and eats into profits.

WHY TOLERATE DUST? Send for booklet "Control of Industrial Dust", telling how to prevent costly "dust pockets" in your plant. Write PANGBORN — world's largest manufacturer of dust control and blast cleaning equipment. "COME TO PANGBORN" NOW!

# Pangborn

PANGBORN CORPORATION, HAGERSTOWN, MARYLAND

When inquiring specify CP A4721 — see handy form pages 2-3

# Basco-TEX

Genuine  
**PLASTIC  
APRONS!**

**WATERPROOF - ALKALI PROOF  
ACID AND OIL RESISTANT**

*Will not crack or peel.  
No laundering—just wipe  
off with damp cloth.  
Topmost protection.*

4 SIZES 6 COLORS



*Free Sample Swatch  
on Request*

**ASSOCIATED BAG & APRON CO.**  
224 W. ONTARIO ST., CHICAGO 10, ILL.  
**SUPERIOR 5809**  
Order by Mail or Phone

<b>WHITE—Light Weight</b>	
27 x 36	.....\$ 6.88 per doz.
30 x 36	..... 7.65 per doz.
36 x 40	..... 9.35 per doz.
36 x 44	..... 10.18 per doz.
Full Length Sleeves	7.15 per doz. pr.
<b>BLACK—Light Weight</b>	
27 x 36	.....\$ 8.40 per doz.
30 x 36	..... 9.78 per doz.
36 x 40	..... 11.90 per doz.
36 x 44	..... 12.60 per doz.
Full Length Sleeves	9.66 per doz. pr.
Leggings, Hip Length	\$11.90 per dozen pair
<b>GRAY—Medium Weight</b>	
27 x 36	.....\$ 8.40 per doz.
30 x 36	..... 9.78 per doz.
36 x 40	..... 11.90 per doz.
36 x 44	..... 12.60 per doz.
Full Length Sleeves	9.66 per dozen pair
Leggings, Hip Length	\$11.90 per dozen pair
<b>MAROON—Heavy</b>	
Double Coated Neoprene	
27 x 36	.....\$10.61 per doz.
30 x 36	..... 12.60 per doz.
36 x 40	..... 16.50 per doz.
36 x 44	..... 18.45 per doz.
Full Length Sleeves	\$12.90 per dozen pair
Leggings, Hip Length	\$23.50 per dozen pair
<b>BLACK—Heavy</b>	
Double Coated Neoprene	
27 x 36	.....\$10.61 per doz.
30 x 36	..... 12.60 per doz.
36 x 40	..... 16.50 per doz.
36 x 44	..... 18.45 per doz.
Full Length Sleeves	\$12.90 per dozen pair
Leggings, Hip Length	\$23.50 per dozen pair
<b>WHITE—Extra Heavy</b>	
20 Mill Plastic	
27 x 36	.....\$12.90 per doz.
30 x 36	..... 14.00 per doz.
36 x 40	..... 18.33 per doz.
36 x 44	..... 20.50 per doz.
Full Length Sleeves	\$12.90 per dozen pair
Leggings, Hip Length	\$23.50 per dozen pair
All Prices F.O.B. Chicago. Minimum order 1 dozen	

When inquiring specify CP A4722—see handy form pages 2-3

## Production

### Packer-Weigher Fills Powdered Materials Into 1 - 25 Lb. Bags

*Feeds and packs product into bag from bottom;  
provides exact pack density required*

**Uses** — For packaging flours, powdered health drinks, ice cream mixes and similar soft, dry powdered products. The illustration provides an excellent example of the advantages of this equipment in packaging dairy drink powder with speed and accuracy. This equipment may be used with bags, cans or cartons.

**Features** — Entirely automatic in operation, this packer-weigher fills from 80% to 90% of the total net weight into the container at the first station. Other features include the use of interchangeable augers and tubes for quickly switching from one size container to another, adjustable drive for lowering of packaging platform to provide pack density required, provision for extra plunging or settling stations, non-choke horizontal spiral feed of product to both bulk and dribble augers, and individual motor drives with reverse switches for instant cut-off.

**Description** — With the "Packomatic" automatic packer-weigher, the operator simply slips the bag onto the packing sleeve and steps on a foot trip. (See the accompanying illustration.) The platform raises against the bottom of the bag, telescoping its full length onto the sleeve while simultaneously the larger auger starts revolving, feeding and packing the product into the bag from the bottom. The bag and the platform are moved downward with the feed

## BLOFLEX

**NON-REINFORCED HOSE**  
**COLLAPSIBLE • STRONG • LIGHT**



**MOVABLE SUSPENSION  
GRIPS** provide support  
anywhere they can be  
hooked.

**COUPLINGS** squeeze fabric  
between two rings to form pas-  
sive air-tight connection.

**Companion prod-  
ucts for elbows, etc.**

#### FLEXAUST

Spiral-wire-rein-  
forced, flexible

#### PORTOVENT

Ring-reinforced,  
retractable

A durable fabric tubing coated with a rubber-like compound, air-tight and moisture-resistant, for blower service only. Can be cut on the job to required lengths, and installed with air-tight couplings and movable suspension grips. No suspension wire needed. Sizes from 8" to 18", weighing only 36 lbs. to 90 lbs. per 100 ft. Write for full information.

### AMERICAN VENTILATING HOSE COMPANY

15 Park Row, New York 7, New York

PLANTS: AMESBURY, MASS. • SEATTLE, WASH.

When inquiring specify CP A4724—see handy form pages 2-3

## For Protection From Corrosion



### Refinery Valves are HASTELLOY Faced

Steel valves last only a few days in aviation gasoline isomerization units because of the extremely corrosive materials used in processing the gasoline. When steel valves are lined with HASTELLOY, however, they give many months of uninterrupted service.

Facing with HASTELLOY nickel-base alloys is a very useful procedure for maintenance men and engineers on processes where corrosion is a problem. With HASTELLOY rod, points of corrosion can be easily covered to give them long life. Write for further information.

**HAYNES**  
alloys

When inquiring specify CP A4723 . . . see information request blank, pgs. 2-3

### You Can Get Facing Rods of These HAYNES Alloys

**For Resistance to Wear and Heat . . .**  
Cobalt-Base Alloys, HAYNES STELLITE

**For High Hardness . . .**  
Iron-Base Alloy, HAYNES STELLITE 93

**For High Resistance to Impact . . .**  
Iron-Base Alloy, HASCROME

**For Utmost Resistance to Abrasion . . .**  
Tungsten-Base Alloy, HAYSTELLITE

**For Resistance to Heat and Corrosion . . .**  
Nickel-Base Alloys, HASTELLOY

### Haynes Stellite Company

Unit of Union Carbide and Carbon Corporation

UCC

General Office and Works, Kokomo, Ind.  
Chicago—Cleveland—Detroit—Houston—Tulsa  
Los Angeles—New York—San Francisco

"Haynes," "Stellite," "Hastelloy," "Hascrome,"  
and "Haystellite" distinguish products of  
Haynes Stellite Company

## CENTRIFUGAL FORCE PUTS THE



**in Aridifier!**

DRY CLEAN AIR

The ARIDIFIER means good riddance to all contamination in compressed air—constant, efficient, continuous riddance.

Water, oil and dirt, left in air lines by the aftercooler, cause trouble. They corrode, foul and cause undue wear in air-operated tools, blemish delicate metal work, spoil sprayed finishes, clog parts, jam automatic controls.

Stop those avoidable breakdowns and rejects! The Aridifier has the only positive principle for delivering dry clean air—centrifugal force. Send for Bulletin 445.

WRITE TODAY

LOGAN ENGINEERING CO.

Makers of Logan Lathes  
4900 Lawrence Ave.  
Chicago 30, Ill.



WET DIRTY AIR

DRAIN

REMOVES

OIL

WATER

DIRT

**Logan ARIDIFIER**  
Drips and Cleans Compressed Air

When inquiring specify CP A4725—see handy form pages 2-3

CHEMICAL PREVIEW



## Production

of the product, and when the predetermined amount is in the bag, the auger stops, the bag is lowered to the platform level and automatically moved over onto the gross weight scale beneath a small diameter auger. The small auger automatically feeds into the bag the balance of the product. When the total net weight is reached, the dribble auger is stopped by tripping of the scale, and the then com-



Dairy drink powder filled into 25 pound bags to near capacity, transferred to weighing-dribble load station and thence to bag closer unit

pleted bag is carried over to the bag closing machine. All the operations mentioned are automatic, continuous and synchronized so, while a bag is getting a bulk lot, the previously filled bag is receiving the final load at the dribble station. Large bags such as those shown in the photo of dairy milk powder application are handled at rate of 3 to 4 a minute. The smallest bags that the machine can generally handle — 1 lb. can be filled as rapidly as 22 a minute. Bag or container size range is from 1 to 25 lbs. Bags up to 22 inches tall can be used. An unusually welcome advantage of this method of packaging materials such as dairy milk powder which are to be mixed with other ingredients in making a finished product is that greater uniformity is attained. With these bags of convenient size and exact amounts precise mixing operations are easily carried out.

Complete information on this equipment and its use in connection with specific products is available upon request.

J. L. FERGUSON CO., Dept. CP, Joilet, Ill.

When inquiring specify CP A4726 — see handy form pages 2-3

### Basic Data on Industrial Petroleum Naphthas

Uses of industrial petroleum naphthas are discussed in detail in a 60-page booklet. Informative facts cover the important factors that enter into the use of petroleum naphthas for a wide variety of industries. The booklet is well illustrated and describes applications in the fields of manufacturing, coatings, such as paints, varnishes, lacquers, asphaltic products, natural rubber and many others. Valuable data on properties are given in easily read table form. Copies are available on request.

GULF REFINING CO., Dept. CP, Gulf Building, Pittsburgh, Penna.

When inquiring specify CP A4727 — see handy form pages 2-3

MAY - JUNE, 1946

**"BOUND TO GET THERE"**  
*... At Lower Shipping Costs!*

REG. U. S. PAT. OFF.

## ...WITH *Acme Steelstrap*

The most efficient shipping container is one that has all excess poundage trimmed off and is stronger. Acme Steelstrap builds up strength and makes containers better able to withstand the hazards of transportation.

Acme Steelstrap lowers shipping costs because: (1) original container costs less due to reduced weight of raw material and resultant manufacturers labor, (2) lighter containers mean less dead freight weight and, (3) claims for damage and pilferage are fewer.

Yes, shipping costs go down, profits up, when you use Acme Steelstrap. Investigate now.

### ACME STEELSTRAP SCORES UP TO 11-1 SHIPPING SAVINGS

From an authoritative source comes . . . "we have used Acme Steelstrap extensively and found that it cuts overall shipping costs considerably. In labor, lumber; nails, screws and bolts; warehousing and shipping space and weight . . . savings, as high as 11-1, were realized over previous methods."

NEW YORK 17

ATLANTA

CHICAGO 8

LOS ANGELES 1

**ACME STEEL COMPANY**

ACME STEEL CO.  
CHICAGO

When inquiring specify CP A4728 . . . see information request blank, pgs. 2-3



YOUR BEST BET WOULD BE

**JESSOP**

STAINLESS-CLAD STEEL\*

— because the stainless-cladding would be most likely to withstand the corrosive action of the hot gases and liquids and the mild steel backing to provide the necessary strength to stand up under the tremendous volcanic pressures.

JESSOP Stainless-Clad Steel provides a practical and economical solution to the twin problems of high temperatures and high pressures used in many of today's chemical processes. The stainless steel cladding offers complete protection against the increased corrosion encountered at high temperatures, and the mild steel backing permits the economical use of heavy plates to withstand high pressures.

Even where corrosion is not a critical problem JESSOP Stainless-Clad Steel affords a practical means of controlling product contamination and increasing equipment life. Investigate its possibilities before you order new equipment. Literature on request.

\*Manufactured under U.S. Pat. Nos. 1,997,538; 2,044,742; 2,147,407; and 2,225,868. Can. Pat. No. 383,153.

**JESSOP STEEL CO.**  
WASHINGTON, PA.

Manufacturers of High Grade Specialty Steels

When inquiring specify CP A4729 — see handy form pages 2-3

## Production

### Electric Sorting Machine

*Many units now providing precise sorting that is speedy, foolproof, automatic*

**Problem** — Modern streamlined food handling and processing operations call for high speed, precision sorting of food products. Beans, corn, peanuts, coffee and even foods like potatoes must frequently be sorted at high speeds.

**Solution** — Electronic sorting machines have already indicated their efficiency in a wide variety of food sorting applications. Over a thousand units like those shown in the accompanying illustration are now serving various food processing plants. Installations consist of sixteen or more machines. While the idea of electronic sorting of food materials is not entirely new it has enjoyed a tremendous growth recently. Tube types employed in the sorting machines include the RCA-908 cathode-ray tube, the RCA-2050 thyratron, and photo-tubes RCA-918 and RCA-IP29. In the sorting of beans, acceptance or rejection of each one depends on the respective percentages of red and green light reflected by it. The mechanical design of the machine provides for feeding the beans, one at a time, through an optical system consisting of an incandescent lamp, a focusing lens, two mirrors, and two phototubes. Light from the lamp is reflected by the bean through the lens to the first of the two mirrors. This mirror is what is known as a "partial" mirror or "50%" mirror. It reflects part of the light through a red colored filter to the first phototube, but transmits another part of the light to the second mirror, which reflects it through a green filter to the second phototube. The first phototube is especially



● Draintrols eliminate delays in waiting for equipment to heat to operating temperature . . . AIR and CONDENSATE discharge instantly . . . Production gets off to a fast start . . . and stays at peak level till quitting time . . . Net results are faster production and lower labor costs . . . No moving parts — Draintrols replace ordinary traps . . . They are easy to install on existing "open" systems. Get the facts — write today for full information.

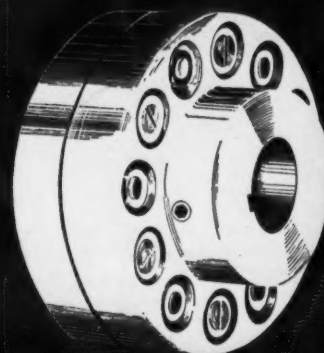
**FRED H. SCHAUB ENGINEERING CO., INC.**  
327 West Huron Street Chicago 10, Illinois

*The Key to Boiler Room Efficiency*  
**SCHAUB SYSTEMS**

When inquiring specify CP A4730 — see handy form pages 2-3



**FLEXIBLE COUPLINGS**

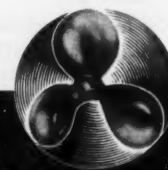


Protecting direct connected machines for 25 years

WRITE FOR YOUR PERSONAL COPY OF THE AJAX DATA BOOK

**AJAX FLEXIBLE COUPLING CO. INC.**  
WESTFIELD, NEW YORK

When inquiring specify CP A4731 — see handy form pages 2-3



**Smooth Vibrationless MICHIGAN MACHINED-PITCH PROPELLERS**  
for MIXING or AGITATION

For replacement or original equipment. Perfectly balanced to avoid whip and strain on equipment. Wide range of sizes and metals in 2 and 3 blade models. Free consultative engineering service. Write for details.

**MICHIGAN WHEEL CO.**  
GRAND RAPIDS 3, MICHIGAN

When inquiring specify CP A4732 — see handy form pages 2-3



sensitive to red light, the second to green light. The output of each phototube is amplified and fed to one of the two pairs of deflection plates of the cathode ray tube. This permits one phototube to control the horizontal sweep of the electron beam in the cathode ray tube while the other phototube controls the vertical sweep of the beam. The degree to which the beam is deflected in either direction is governed by the respective amounts of red and green light reaching the phototubes. A partial mask covers that part of the face of the cathode ray tube on which



Electronic sorters separate good beans from bad

the electron beam will appear when controlled by the color range of an acceptable bean. When a bad bean passes through an optical system, the color of the reflected light affects the output of the phototubes, and this in turn alters the sweep of the electron beam so that it appears on the outside of the mask. Any position of the electron beam outside of the masked area actuates a third phototube whose output is amplified to operate an ejector mechanism which rejects the faulty bean. This action is, of course, virtually instantaneous.

**Results** — Great savings in labor, time, space and in accuracy of operations. Provides reliable control of product quality. (Information concerning these machines and their application to specific requirements on request.)  
ELECTRIC SORTING MACHINE CO., Dept. CP, 410 44th St., S. W. Grand Rapids 8, Mich.

When inquiring specify CP A4733 — see handy form pages 2-3

## Surface Temperature Indicator

*Eight thermocouples provide use for wide variety of applications*

**Uses** — This instrument is widely used in surface temperature measurement problems found in the chemical, plastics, paper, textile, steel, rubber and other industries.

**Features** — Eight types of thermocouples and two types of extension arms provide flexibility in making many kinds of surface temperature measurements.

**Description** — A self contained and portable pyrometer, housed in a shock, moisture and dust-proof shielded housing is not affected by external magnetic influences. Five temperature ranges from 0-300° F to 0-1200° F are available for metallic and non-metallic surface temperature problems. Internal automatic cold end junction compensation is standard equipment. Interchangeable thermocouples are designed to eliminate temperature gradient errors. A new catalog No. 160, which describes the equipment, will be sent on request.

THE PYROMETER INSTRUMENT CO., Dept. CP, 103 Lafayette St., New York 13, N. Y.







When inquiring specify CP A4734 — see handy form pages 2-3

MAY - JUNE, 1946

# how will you have your heat?

## G-E ELECTRIC HEATERS.....

*the answer to chemical plant "small heat" problems!*

TYPE	APPLICATIONS	DIMENSIONS
<b>CALROD HEATER</b> 	Heating metal surfaces by contact; air and pipe heating.	Diameters range from 0.280 inch to 0.600 inch. Up to 135 inches in small diameters; up to 200 inches in large diameters.
<b>IMMERSION HEATER</b> 	Heating water, oils and alkaline baths; mild acid and plating baths.	Sizes and shapes for nearly any tank.
<b>CARTRIDGE HEATER</b> 	To create heat "spots" in process machinery.	In diameters of 0.375 to 1.293 inches. In lengths of 1.5 to 8.5 inches.
<b>STRIP HEATER</b> 	Heating process machinery, warming tables, drying cabinets, pipe lines, machinery rolls, or compound tanks.	Over-all lengths from 7 inches to 35.5 inches. Width, 1.5 inches.
<b>FIN HEATER</b> 	To heat air in ducts with a forced draft in chemical processes.	Standard fin lengths from 20 inches to 104 inches. Diameter 1.25 inches.
<b>CABLE HEATER</b> 	Protecting pipes and valves from freezing; warming valves and pipe lines that carry viscous material.	Cable dia., 0.24 inch 60 ft on 115 volts, 400 watts 120 ft on 230 volts, 800 watts 240 ft on 460 volts, 1600 watts

### Here's electric heaters for handling 1001 small heating jobs in process plants

For clean, easy-to-control heat, use G-E electric heaters. You can coil them around piping or fix them to metal surfaces to heat by contact. You can immerse them in tanks, steel drums, dye kettles, or mixing vats, or clamp them on to oven walls or under warming tables. You can even cast certain types into iron or aluminum and use them as machine parts.

For specific applications, there's a wide selection of sheath materials for use in water, acid, alkali, oil, and plating baths. Unlike complicated steam heating equipment, electric heaters are easy to install; they supply heat for process work almost instantly. You eliminate boiler operation during summer months as well as heat losses from steam piping. Because electric heat is easy to control, you eliminate the hazard of overheating and make working conditions in your plant safer and more comfortable. G-E heaters are simply constructed and need little maintenance.

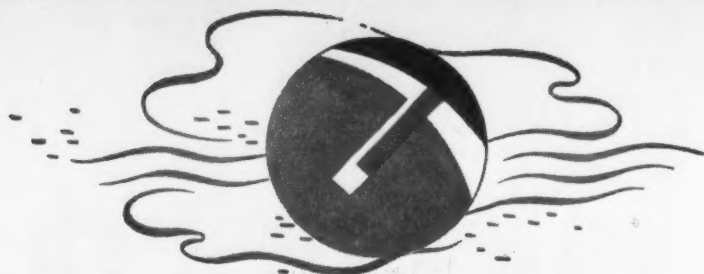
### ILLUSTRATED HEATER CATALOG GIVES FULL INFORMATION

When you need an electric heater, you want information about it fast. Write today for Bulletin GED-650B. Apparatus Dept., General Electric Co., Schenectady 5, N. Y.



## GENERAL ELECTRIC

When inquiring specify CP A4735 . . . see information request blank, pgs. 2-3



## WHAT—NO "FEATURES"?

... in Gast Vacuum Pumps (to 28 in.), Compressors (to 30 lb.), and Air Motors (to 1 h.p.)

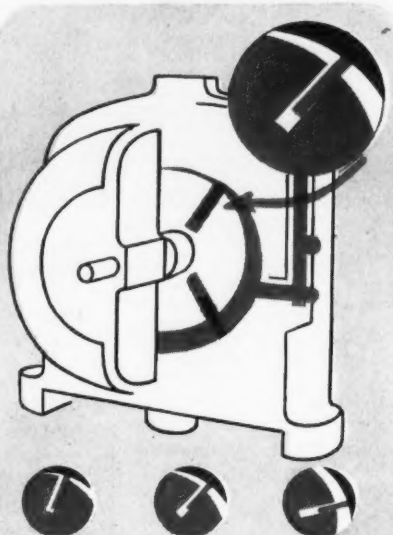
The Gast is so remarkably free of "features" and complexities that users say truly, "It practically works without works."

Could anything be less prone to trouble, or more likely to work, than a slotted rotor, with one-piece vanes which slide outward against the cylinder walls, and seat themselves, and take up their own inconsiderable wear, because centrifugal force won't let them do anything else?

That's all there is to a Gast. That's why Gasts work so dependably, why they deliver MORE per pound of weight and MORE per horsepower, and why they can be so well built, yet so reasonably priced.

The logic of Gast simplicity appeals strongly to men who manufacture machines. They see that simplicity in terms of sales, and in terms of care-free operation in users' hands. More and more of them are sending for the Gast catalog, and arranging for a Gast Engineering Test. Very possibly it will pay you to do the same.

GAST MFG. CORP.  
101 Hinkley Street  
Benton Harbor, Michigan



Vaness: Self-seating... self-adjusting... springless. Centrifugal force holds them against cylinder wall. They "work without works"... Continuous, non-pulsating flow... More air per

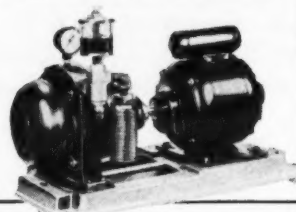
pound of weight, more air per horsepower... Forced-air cooling: long life, oil economy, no hot-oil odor... Automatic shaft seal: no packing, no leaking, no adjusting.

# GAST

## ROTARY

### ENGINEERING TEST OFFER .. So You Can SEE IF YOU'RE MISSING SOMETHING!

Simply write our Engineering Department and explain the operation you think air might handle, or describe the job air is already doing for you. Our Engineering Department will study your problem, select or design a Gast unit to do the specified work at less cost or at greater efficiency or both. Then, without cost or obligation, the recommended unit will be shipped to you for your performance tests.

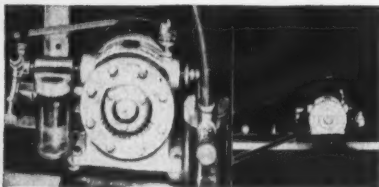


### GET THIS IDEA-CATALOG



Is not only tells how Gasts are built and all about them, but suggests uses that may not have occurred to you. Write for it; no charge or obligation!

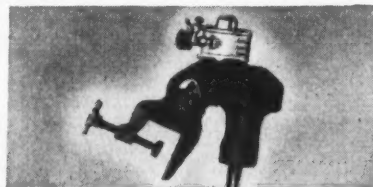
## VACUUM PUMPS • AIR COMPRESSORS • AIR MOTORS



Gast Vacuum Pumps as Standard equipment on a Camera



A Gast Compressor in Combined Vacuum and Pressure Duty on a Printing Press Feeder



A Gast Air Motor as a Portable Mixer

## Production

### Automatic Machine Molds Natural and Synthetic Rubber

*Preforms eliminated; curing time greatly cut; finishing operations reduced to minimum*

**Uses** — A wide variety of mechanical parts can be molded on this machine such as "O" ring gaskets, rubber bushings and automobile motor mountings.

**Features** — The Turbojector, by means of a motor driven screw, injects rubber into a hydraulically clamped mold. The entire machine cycle is automatic. The unit is completely self-contained, the base containing pumps and



Turbojector mounted to the stationary platen of horizontal, straight-line mold clamp

valves for controlling all hydraulic actions. The only connections required to put the machine in operation are electric power and cooling water. As a result of the design features employed preforms are not required, curing time is reduced, flash is eliminated and finishing operations cut to a minimum. The driving mechanism of the injection unit consists of a 10 HP, four speed electric motor and train of gears, directly connected to the injection screw. The rubber, in strip, pellet or rod form is fed into the injection cylinder by the feed screw. As the rubber advances, the feed screw meshes with a set of specially designed, free running baffle gears, which act as pressure locks. The action of the screw and baffle gears forces the rubber into the nozzle. The frictional heat produced in the injection chamber raises the temperature of the rubber as high as 300 degrees F. Additional heat is secured at the nozzle by employing an electrical resistance band heater. This pre-heating accounts for the rapid curing cycles which can be obtained.

Maximum nozzle contact pressure during the injection is approximately 6000 pounds, permitting injection pressures as high as 18,000 psi on the material to be molded. The entire injection unit is pivoted on a stationary mold clamp platen and is hydraulically tilted, thus permitting the nozzle to engage the mold only during the injection. To facilitate the changing of molds, the injection head can be hydraulically tilted clear of the mold space. Specifications: Mold clamp capacity (tons) — 450; Pressure for separating molds (tons) 26; Mold space (horizontal x vertical) 21½" x 28"; Overall space (L — R x F — B) 106¾" x 40". Of interest in connection with the performance of

When inquiring specify CP A4736 ... see information request blank, pgs. 2-3



## Production

this machine is the handling of the rubber bushing previously mentioned. They represent one of the largest moldings, requiring an injection capacity of  $2\frac{1}{2}$  pounds. Each bushing was approximately  $\frac{7}{8}$ " in diameter by  $1\frac{1}{8}$ " lg., and 100 bushings were molded per cycle. The cure time for this large molding was  $1\frac{1}{2}$  minutes, compared with approximately 20 minutes required by conventional compression methods. Bulletin Number 4001 gives complete details.

THE HYDRAULIC PRESS MFG. CO., Dept. CP, Mount Gilead, Ohio.

When inquiring specify CP A4737 — see handy form pages 2-3

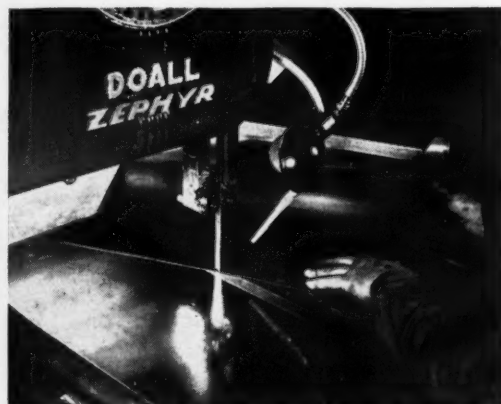
★

## Saw Cuts 1/8 In. Stainless Steel At 48.6 Lineal Ins. a Minute

*Suitable for paper, wood, plastics, laminates and composition materials*

**Uses** — Although designed for light gauge steel and foundry applications, this high speed saw is serviceable in woodworking and pattern shops. It may also be used to advantage on such other materials as paper, plastics, laminates and composition materials.

**Features** — Steel springs and links, flexible steel tubing, laminated rubber and steel, or aluminum and wood, steel



Saw has 16" throat depth; 10" thickness capacity — speed range 1000 to 5000 fpm

and rubber tubing or porcelain steel can all be sawed on the Zephyr 16 with speed and good finish. The saw slices through  $\frac{1}{8}$ " stainless steel at 48.6 lineal inches per minute.

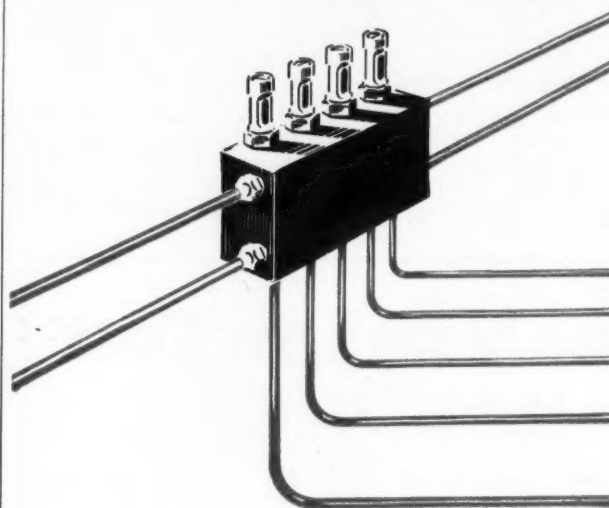
**Description** — This Zephyr 16 is a smaller version of the DoAll 36. It has a 16" throat depth and a 10" thickness capacity. Incorporating DoAll's speed assembly the machine has an infinitely variable speed range from 1000 to 5000 fpm. The table is of the tilting type, and there is a disc cutting attachment for making perfect circles, a rip fence and a mitering attachment for cutting of regular and compound angles. Hardened steel saw guides with roller back-up bearing hold the blade firm for straight true cuts to close tolerance. Catalog containing complete information is available.

THE DOALL COMPANY, Dept. CP, 1300 Washington Avenue South, Minneapolis 4, Minn.

When inquiring specify CP A4738 — see handy form pages 2-3

MAY - JUNE, 1946

## FARVAL—Studies in Centralized Lubrication No. 77



# 2,000 Bearings Lubricated in 5 Minutes

**I**N steel mills, bearing lubrication is no longer a problem when Farval centralized lubrication is installed. In one Indiana hot strip mill, a single Farval central station lubricates 2,000 bearings in five minutes—delivering the *right* amount—at the *right* time. No more hit-or-miss lubrication. Maintenance costs drop.

For example, the average life of a set of top roll bearings on a plate mill, was about 20,000 tons. After Farval was installed bearing life was increased 25 times. Half a million tons were rolled and the bearings were still on the job! Savings in brasses alone amounted to more than \$15,000 per year, from an original investment of less than \$3,000.

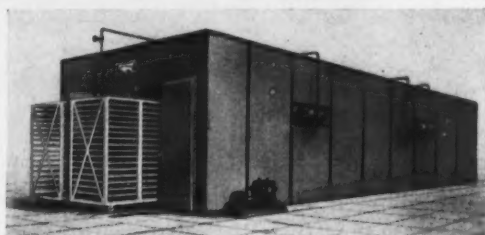
Farval delivers oil or grease under pressure to a group of bearings from one central station, in exact quantities, as often as desired. Farval is the Dualine System with the Positive Piston Displacement valve that has but two moving parts, with a Tell-tale at each bearing to show the job is done.

Comparable savings with Farval can be made on your equipment. Write for details.

THE FARVAL CORPORATION  
3257 East 80th Street • Cleveland 4, Ohio  
Affiliate of The Cleveland Worm & Gear Company,  
Industrial Worm Gearing.  
In Canada: PEACOCK BROTHERS LIMITED



When inquiring specify CP A4739 . . . see information request blank, pgs. 2-3



## "NATIONAL" Semi-Continuous TUNNEL TYPE TRUCK DRYER

For quantity production of filter pressed chemicals in cake or sludge form, and minerals and ores requiring rapid drying.

Material is carried on solid, perforated or wire bottom trays, in trucks advanced intermittently through the dryer in one or more lanes. Two-directional distribution of the drying medium assures thorough, uniform drying of the entire load. Rugged, durable construction.

Send for Illustrated Folder

Chemical Dryers of All Types and Sizes



Special Drying and Heating Equipment

**THE NATIONAL DRYING MACHINERY CO.**  
2709 N. HANCOCK STREET • PHILADELPHIA 33, PA.

When inquiring specify CP A4740 — see handy form pages 2-3

## Production

### Feeder Has Pulsating Magnet Forward & Above Grizzly Deck

*Actual feeding restricted to oversize material; bulk fines vibrated through at rear of trough upon introduction to the feeder*

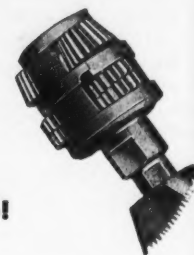
**Uses** — These "screening-grizzly-feeders" are designed for large capacity, heavy duty service. The model F-45 illustrated has an actual conveying capacity of 200 tons per hour, but for separation purposes, this capacity must, of necessity, be cut down to meet the percentage of fines discharged required by the user. This grizzly is handling 65 tons per hour of run-of-mine clay to a crusher, and taking out fines of 1½ inch and under. Thus, by using a heavier-duty pulsating magnet or a combination of magnets, capacities of up to 500 tons per hour can be obtained.

**Features** — A welcome advantage is gained by the type of construction shown — that of having the pulsating magnet forward and above the grizzly deck — in that the full length of the grizzly is utilized for material separation and discharge. The actual conveying or feeding is restricted to over-size material — the bulk of the fines being vibrated through at the rear of the trough upon introduction to the feeder.

**Description** — The vibratory action of the feeders is particularly adaptable to separation operations. While not perceptible to the eye, its movement or stroke is actually upward, forward and back, momentarily leaving the material suspended, then repeating this movement 3600 times

## POWER

**AIRETOOL  
TUBE CLEANERS  
HAVE THE "DRIVE"  
for the TOUGH JOBS!**



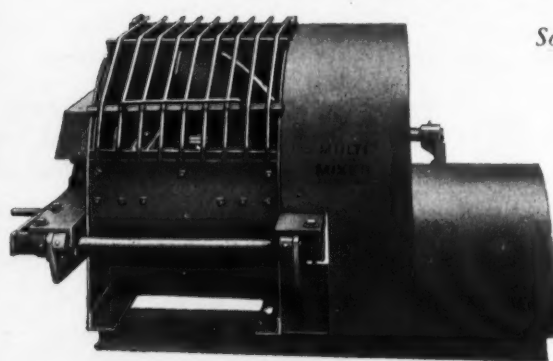
The reserve capacity of Airetool's 28% more powerful motor gives it that extra "drive" when the going is tough and enables it to be loaded down to 50 rpm without stalling. This important feature combined with the New Form cutters that do not track makes Airetool Tube Cleaners outstanding in their field. Sizes of cleaners range from ½" to 24" I. D.

Write Dept. 500 for Helpful Cleaner Bulletins that are yours for the asking.

**AIRETOOL MANUFACTURING COMPANY**  
**SPRINGFIELD, OHIO**

When inquiring specify CP A4742 — see handy form pages 2-3

## NOW READY The New Low Cost Multi - Mixers for Chemical Plants



3 to 60 Cubic Feet Capacity  
Open or Closed Type Cover  
Discharge Arranged to Suit Conditions

*Solve Your Heavy Duty Raw Material Mixing Problems With Multiples*

We have built mixers for many chemical, rubber, ceramic and process plants and may be able to help you in your quest for heavy duty, inexpensive mixers. These mixers are fast and efficient — using our special Multi-Mix principle of Multi-arranged paddles with all material in action at all times.

Write for New Illustrated Catalogue

**MULTIPLEX MIXERS — ELMORE, OHIO**

When inquiring specify CP A4741 . . . see information request blank, pgs. 2-3

*Improved*

### WEATHERHEAD T RING PACKING

This new product, shown here in an exploded view, solves the problem of sealing fluids in many types of machines employing various pressures. It meets the requirements of both standard and special applications. This T ring packing is available in two types and in sizes ranging from ½ inch to 4 inch O.D. For information or literature write or phone any Weatherhead branch office.

Look Ahead with  **Weatherhead**

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO  
Branch Offices: New York, Philadelphia, Detroit, Chicago, St. Louis, Los Angeles

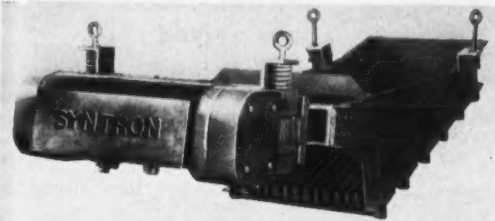
When inquiring specify CP A4743 — see handy form pages 2-3

CHEMICAL PREVIEW



## Production

per minute. Thus, some impact is occasioned between the material and the grizzly bars which, while slight, is of sufficient force to tumble the material and hasten sep-



Feeder — full length of grizzly utilized for material separation and discharge

aration. These "grizzly feeders" include features associated with the maker's other feeders. The rheostat control of feed, enables the operator to equalize the feed of material with the capacity of the crusher. The feeders are easily arranged for automatic control, such as by electric ear, or by a special control which maintains the ampere input of the crusher motor at a constant, cutting the feeder out when an overload is indicated, and cutting the feeder in as soon as the input is back to normal. Since movement is confined to the vibrating spring bars which actuate the reciprocating trough, the entire absence of idlers, bearings, motors, gears and other moving parts eliminates the necessity of constant lubrication. Catalog giving detailed capacity and layout specifications is available.

SYNTRON CO., Dept. CP, 110 Lexington Ave., Homer City, Pa.

When inquiring specify CP A4744 — see handy form pages 2-3

## Compound Tank Heated From Inside by Removable Immersion Tubes

Equipped with two outlet valves, separately heated; 10 gallon capacity

Uses — For heating, melting and pouring battery, transformer, capacitor and resistor compounds.

Features — Heated from inside through a patented removable immersion tube system. This new method of heating plus full insulation brings the user a savings in time, labor and fuel. The novel feature of this unit is that it is equipped with two outlet valves that are separately heated. Since each outlet valve is at opposite ends of the tank this means that the two operators can operate independently with both hands of both workers free. The distance across the table between valves is 21 inches leaving plenty of room to set up cooling racks or other production aids. The ends of the valve are 15 inches above the table level thus giving plenty of clear working space.

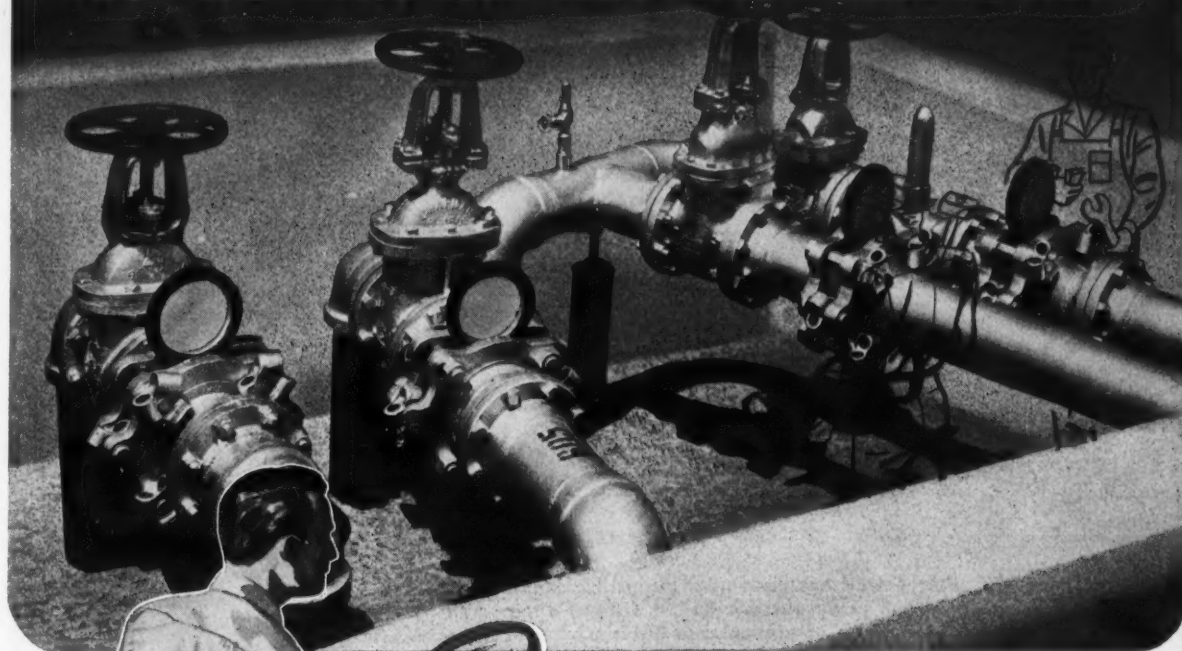
While the tank itself is gas fired, it is equipped with electrically operated thermostatic controls for finger tip temperature regulation from 100° to 550° F. A dial thermometer is installed in each unit for visible temperature check. In addition, each unit comes complete with a safety pilot control to shut off the gas line should the pilot light be extinguished. The standard spouts are set for a stream of .208 inch diameter but other sizes can be supplied. The full liquid capacity of the Model 22TGT is 10 gallons but other sizes are available. An illustrated bulletin Number 561 will be sent on request.

AEROIL PRODUCTS CO., Dept. CP, West New York, N. J.

When inquiring specify CP A4745 — see handy form pages 2-3

MAY - JUNE, 1946

## The TWO Little Men Who Aren't NEEDED Here



*One Man* with a bar  
will blind these 4 lines  
in seven minutes ...  
*without spilling a drop!*

He won't use sledges, he won't need wedges—and he can leave the bucket at home. For these HAMER 4-BOLT LINE BLINDS have inter-fitting hubs which effectually prevent any leakage of line fluid. As with all Hamer Line Blinds, it is easy to reverse the spectacle plate . . . just loosen the nuts, then turn the pusher screws. They give positive, permanent, leak-proof shut-off, and are changed from full open to full closed (or vice versa) in a matter of seconds. By enabling one man to blind a line in less than two minutes . . . a job that often takes two or three men a full hour, the old way . . . the HAMER 4-BOLT Line Blind is effecting important savings on pipe lines, in refineries, chemical plants and in many other installations. WRITE for FULL DETAILS.



## HAMER 4-BOLT LINE BLIND

Screw End or Welding End Types • Series 300 and 600  
Sizes 2½ to 10 inch

HAMER OIL TOOL COMPANY

2919 GARDENIA AVENUE, LONG BEACH 7, CALIFORNIA

When inquiring specify CP A4746 . . . see information request blank, pgs. 2-3

**RUST PREVENTION POLICY**  
**Proven Insurance**  
**against RUST**  
**with TOTRUST**

For nearly 20 years Totrust has been used by leading industries in America to control and prevent RUST. Results are not a matter of guesswork but of thousands of proven case histories. The accumulated knowledge and experience of the Wilbur & Williams Company is insurance of adequate RUST CONTROL even under adverse conditions.

Which of these conditions hinders your maintenance?

- Rust which cannot easily be removed . . .  
Totrust strangles rust
- High Humidity and Condensation . . .  
Wetness is no handicap to Totrust
- High Labor Cost . . .  
Preparation and Priming Costs cut in half

**How TOTRUST Stops Rust at its Source!**

Ordinary paints merely cover over Rust pits and leave moisture particles inside. Rust expands and ultimately breaks the surface of such paints. TOTRUST penetrates to the bottom of pits, expelling all moisture and sealing off the surface; it strangles rust.

TOTALUME combines all the qualities of TOTRUST in an aluminum paint that resists heat up to 800° F. Unusually brilliant, highly elastic, quick-drying, it is the perfect aluminum paint.



**The WILBUR & WILLIAMS COMPANY**

Protectioneering Services also include:  
 Coloring and Hardening Concrete Floors,  
 Painting Wet Walls and Ceilings, Corrosion  
 Proofing against Acids and Alkalis,  
 Stopping Bleeding Stains. Write for information  
 about your problem.

The Wilbur & Williams Co., Dept. 905  
 Park Square Bldg., Boston 16, Mass.

Gentlemen:

Please send me Technical Bulletin giving full information about TOTRUST and other Protectioneering Services.

Name.....

Company.....

Address.....

City.....

State.....

When inquiring specify CP A4747 — see handy form pages 2-3

**Production**

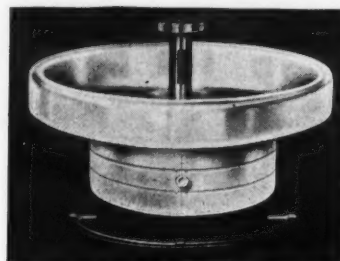
**"Washfountains" — In Enameled Iron and Stainless Steel**

*Streamlined pedestals for easy accessibility*

*Uses* — To provide facilities for convenient group washing where requirements call for exceptional strength and durability to withstand severe use.

*Features* — This style of equipment discontinued during the war has just recently been returned to production. They have been redesigned and streamlined.

*Description* — The enameled bowls are one piece pressings of highest quality deep drawing steel, finished in white acid resisting vitreous enamel. The



Washfountain with streamlined pedestal stainless steel bowls are pressed from heavy gauge 18-8 stainless steel. Both are available in roll rim or deep apron design. Pedestals of the enameled iron and stainless steel fountains are streamlined to afford maximum accessibility to interior mechanisms by means of readily removable panels. All metal fountains are available in 54" and 36" diameter sizes; circular or semi-circular; hand or foot controlled and in types which meet every plumbing condition. Bulletin W-105 gives further details.

BRADLEY WASHFOUNTAIN CO.,  
 Dept. CP, N. 22nd & West Michigan  
 Sts., Milwaukee, Wis.

When inquiring specify CP A4748  
 — see handy form pages 2-3

**Stainless Steel Bellows**

Contains diagrammatic cross-section views and important, up-to-date information. The use of stainless steel bellows for equalizers, compensators, expansion joints, flexible connectors, flow control, vapor and steam traps, and many other applications is described. Specifications and data for many sizes are of special interest. Copies of this new booklet, SS B-46, may be obtained by writing the manufacturer.

CHICAGO METAL HOSE CORPORATION,  
 Dept. CP, Maywood, Illinois.

When inquiring specify CP A4749  
 — see handy form pages 2-3

**MANY INDUSTRIAL ROLL PROBLEMS are solved by using "SHAF-TITE" ROLLS**

Many patented constructions provide strongest possible shaft setting. Your choice of many different types and materials—wood, rubber, iron, brass, stainless steel, plastic, etc. Whatever your roll problem, put it up to

**RODNEY HUNT**  
 SEND FOR CATALOG TODAY!  
 RODNEY HUNT MACHINE CO.  
 273 Maple Street, Orange, Mass.

When inquiring specify CP A4750 — see handy form pages 2-3

**can your valves match this?**  
**You never have to repack these valves**

**NO PACKING**—The resilient diaphragm isolates working parts from the flow, and seats tight against weir for absolutely leakproof closure. No wire-drawing to worry about. Maintenance consists of occasional replacement of diaphragm—a matter of minutes and pennies. Enjoy the time, money and labor-saving benefits of one of the simplest, most revolutionary valves ever designed. Ask for CATALOG No. V-44.

For control of acids, alkalis, gases, semi-solids, volatile and viscous substances, slurries, water, air, etc. For pressures to 150 psi.

Maximum recommended temperatures, standard valves 180° F.; others to 220° F. Sizes to 1/2" to 14" both screwed and flange. Handwheel and lever operated types . . . air, motor or chain operated.

**HILLS-McCANN COMPANY**  
 2370 W. Nelson St., Chicago 18, Ill.  
**HILLS-McCANN Diaphragm Valves**  
 SAUNDERS PATENT

When inquiring specify CP A4751 — see handy form pages 2-3



## Production

### Plug Provides Quick Repair for Tank Leaks

*Plugs quickly installed; selection of three non-contaminating coverings*

**Uses** — These plugs are especially designed for quickly stopping tank leaks, avoiding costly repairs and shut-downs. The plugs may be used on tanks containing a wide variety of liquids as the selection of plug coverings meets specific requirements.

**Features** — Plugs may be installed in 15 minutes or less.

**Description** — The flange part which fits on the inside of the tank is rubber covered and when leaks occur a hole is drilled



Tank Seal Plug

through the tank and the "Perma-plug" is inserted from the inside and held in place by the stud which goes through the wall of the tank and is fastened by a lock washer and nut on the outside. The covering for "Perma-plugs" is neoprene, vinylite or natural rubber. The purpose for which the plug is to be used determines the covering. These three materials have been selected because they are non-contaminating. The entire metal assembly is cadmium plated before the coating is applied. Metal assemblies of stainless steel can be furnished. "Perma-plugs" are made in stock sizes of 2", 4" and 6". Special sizes and shapes made to order.

**PERMA-LINE RUBBER PRODUCTS CORP.**, Dept. CP, 1840 N. Damen Ave., Chicago 47, Ill.

When inquiring specify CP A4752  
— see handy form pages 2-3

For more information on product at right, specify CP A4753  
... use information request blank between pages 2-3.

# Costs Go Down...

when you install

# GLASS PIPE

**USE PYREX PIPE for**

1. VISIBILITY
2. CORROSION RESISTANCE
3. PURITY MAINTENANCE

## Pyrex Pipe Data...

**EASE OF INSTALLATION.** Your own men can install a PYREX brand Glass Pipe Line. No special tools or special training are required. The pipe, the fittings and the hardware come to your installation point ready for assembly. There's no cutting to lengths, no threading necessary on the job. Stock adaptor flanges are available to connect PYREX Pipe to metal pipe and other plant equipment.

**SIZES AND FITTINGS.** PYREX brand Glass Pipe is now available in 1", 1½", 2", 3" and 4" i.d. A complete line of standard PYREX fittings includes ells, tees, return bends, laterals, and reducers. Special fittings can be readily made to your specifications.

**PRESSURES AND TEMPERATURES.** Operating temperatures as high as 250°F. are not unusual—and temperatures as high as 400°F. can be considered. Most installations operate at pressures up to 50 p.s.i.—but pressures as high as 100 p.s.i. can be considered.

**VISIBILITY.** The crystal clear transparency of PYREX Pipe permits visual inspection of every foot of your pipe line at any time. This feature serves to forwarn you of unexpected trouble in your pipe lines. In some cases it has saved the entire amount of the investment in PYREX Pipe in a single instance.

**MAINTAINING PRODUCT PURITY.**—PYREX Pipe is resistant to all acids (except HF) and moderate alkalis. There is no heavy metal pickup or danger of metallic contamination. PYREX Pipe lines assure the ultimate in obtaining product purity.

Whether you figure piping costs in terms of initial outlay or in terms of over all costs—spread over the length of service it will give you—PYREX Pipe is your best bet.

PYREX Pipe (accessories included) costs about the same or less than full weight copper or brass pipe in comparable sizes. It is lower in cost than most other corrosion resistant alloy pipe. But when you take into consideration length of service, elimination of replacements due to corrosion and the savings in shut-down time, PYREX Pipe can be considered a permanent investment.

That is why, in plant after plant, when PYREX Pipe is installed on a tough service job, piping costs have gone down. For complete details, write to the Industrial Sales Dept. CP-5.

## CORNING GLASS WORKS

CORNING, NEW YORK

TROUBLE CAN'T HIDE  
BEHIND GLASS

**Pyrex**

**GLASS PIPE**  
BY CORNING GLASS WORKS, CORNING, NEW YORK

INDUSTRIAL SALES DEPT., CP-5  
Corning Glass Works, Corning, New York

Please send me IA-1 "PYREX Pipe" for the Process Industry.

Name.....Title.....

Firm.....

Address.....

# Uniform Separation

FOOD PRODUCTS — CHEMICALS — METALLICS  
NON-METALLIC MINERALS

The new model GAYCO Centrifugal air separator makes possible the uniform and increased recovery of fine material within a range of 40 to 400 mesh.

- Greater Capacity
- Cleaner Trailings
- 99% Through 325 Mesh
- 25% to 30% greater recovery of fines
- Not affected by variation in speed or rate of feed



The Gayco Separator Handles

SUCH PRODUCTS AS

BAGASSE	GROUND HAIR
CASEIN	GROUND OATS
COCOA POWDER	GUM ARABIC
COTTONSEED	SOY FLOUR
MEAL	SPICES
FERTILIZER	SUGAR

## Universal Road Machinery Co.

RUBERT M. GAY DIVISION 117 Liberty St. New York 6, N. Y.  
Canadian Representative: F. H. Hopkins & Co., Ltd., Montreal  
FACTORY & LABORATORY, KINGSTON, N. Y.

When inquiring specify CP A4754 — see handy form pages 2-3

## Production

### Hydrying Atmosphere Employed In Heat Treatment of Metals

*Eliminates scale formation, carburization and decarburization*

**Uses** — Hydrying atmospheres are used for bright hardening of high, medium or low carbon steels; annealing and normalizing of any carbon content steel; bright copper or silver brazing; carbon correction of decarburized parts; sintering of powder metals and as a carrier gas for gas carburizing.

**Features** — Parts processed in furnaces using a hydrying atmosphere are free from carburization and decarburization. Brazing and sintering operations are performed without decarburization. The Hyen generator produces an atmosphere high in carbon monoxide and dry hydrogen, which, together with zero carbon dioxide and low water vapor content, make it ideal for use with high carbon steel. Generator may be set to produce a gas in equilibrium with any carbon content steel.

**Description** — A neutral Hyen Hydrying Atmosphere is produced by cracking the hydro-carbon constituents (methane, ethane) of natural, artificial, propane, or butane gas with air over a heated catalyst to produce carbon monoxide and hydrogen. No burning of the gas to the undesirable constituents of carbon dioxide or water vapor takes place in the cracking process. This is accomplished by full automatic control throughout the entire process. To produce the desired atmosphere the air-gas ratio is set by means of a graduated adjusting knob on the car-

## DO DIRTY GASES OR LIQUIDS CLOG YOUR VALVES?



Showing bottom plate removed for cleaning out accumulated deposit in valve.

For air, gases or liquids carrying solids that may clog or jam ordinary valves, the "Kwikleen" is the answer. The slide blade, on closing, pushes dirt particles into the reservoir at the bottom of valve. Cleaning the valve is easy; simply remove bottom end plate, attach high pressure air or steam line to side opening and blow solids out of bottom.

"Kwikleen" Slide Valves give full flow area, are easy to control and shut off. They're rugged; built of any metal; 4" to 16" pipe sizes; pull handle, lever or wheel control.

## ROCKWELL VALVES

— SLIDE AND BUTTERFLY TYPES —

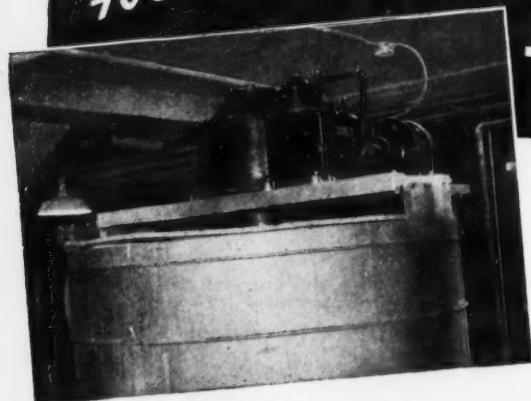
W. S. ROCKWELL COMPANY

220 ELIOT STREET • FAIRFIELD, CONN.

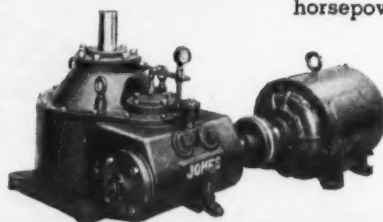
When inquiring specify CP A4756 — see handy form pages 2-3

For driving agitators, mixers and similar equipment—

## JONES WORM-HELICAL SPEED REDUCERS



• This Jones Worm-Helical Speed Reducer on a lacquer agitator is typical of the wide range of services for which these drives can be used such as ore roasters, pulp tank mixers, furnaces, bending rolls and similar applications



**H**ERE is a line of machines that fills a long felt need for double reduction units of the fully enclosed type to be used for agitators, mixers, etc. requiring a vertical shaft drive.

Many of these Jones units have established excellent performance records in a wide variety of service. As a result of that experience a complete standard line has been developed covering 15 standard ratios ranging from 40 to 1 to 250 to 1 for all common motor speeds and a wide range of horsepower ratings.

The new Jones Bulletin No. 75 covers complete details on these new Worm-Helical Speed Reducers, with rating tables, dimension diagrams, torque charts and other application information. We shall be pleased to send you a copy.



W. A. JONES FOUNDRY & MACHINE CO.

4455 Roosevelt Road, Chicago, Illinois

# Jones

HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS • PULLEYS  
CUT AND MOLDED TOOTH GEARS • V-BELT SHEAVES • ANTI-FRICTION  
PILLOW BLOCKS • FRICTION CLUTCHES • TRANSMISSION APPLIANCES

When inquiring specify CP A4755 . . . see information request blank, pgs. 2-3

## 2-PIECE ACID DRUMS



for added years of trouble-free service

The two-piece construction of Hackney Acid Drums minimizes the possibility of chime failure and eliminates chime crevices. The reinforced, separate chime protectors — together with the I-bar hoops — substantially increase resistance to rough handling and abuse. Corrosion and bung failure are avoided by the two-pass weld and careful attachment of heavy forged spuds. Heat-treating after complete fabrication further improves the durability and resistance to corrosion of Hackney Acid Drums.

Write today for full details.



PRESSED STEEL TANK COMPANY  
Manufacturers of Hackney Products

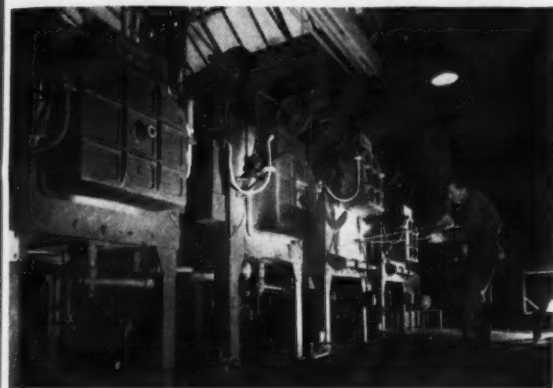
1387 Vanderbilt Concourse Bldg., N. Y. 17 1463 S. 66th St., Milwaukee 14  
208 S. LaSalle St., Room 2085, Chicago 4 568 Roosevelt Bldg., Los Angeles 14  
235 Hanna Bldg., Cleveland 15  
Containers for Gases, Liquids and Solids

When inquiring specify CP A4757 — see handy form pages 2-3



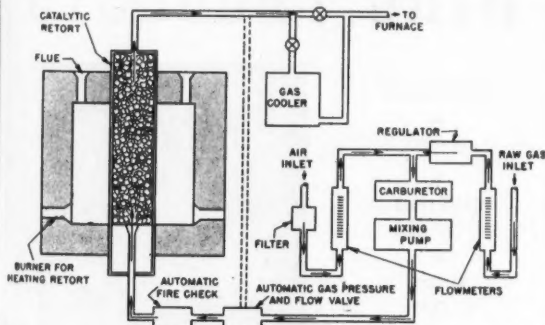
## Production

buretor of the mixing machine. A mixing pump draws the air and raw gas through the flowmeters, and the carburetor holds the desired air-gas ratio constant regardless of the rate of flow or variable atmosphere demand placed on the generator. From the mixer the air-gas mixture is pumped through an automatic pressure and flow valve, then to an automatic fire check and into the catalytic cracking retort. Gas-fired external heating of the retort to incandescence is under automatic control. The com-



Four tool hardening furnaces use protective atmospheres

pletely reacted, dry, hot atmosphere may be piped directly to the heat treating furnace or it can be cooled in the gas cooler for metering and distribution purposes where more than one heat treating furnace is to be supplied with the generator gas. Operation of the Hyen generator is fully automatic. The operator merely lights the pilot on the gas burners and presses the pushbuttons on the control panel. When the catalytic retort reaches the proper



Pat. applied for

temperature, the mixing machine is started and the protective atmosphere is immediately available for use. The automatic temperature control, mixing control, and pressure and flow control make it possible to cut a furnace into the atmosphere line or to cut it out without the necessity of the operator returning to the generator each time to readjust the air-gas ratio, the pressure, or the flow.

This rich atmosphere for high carbon steels may be made leaner in fine increments to be in equilibrium with any carbon content from 2.0% down to 0.10% by using less raw gas and more air in the ratio setting.

Hyen generators are available in capacities of 500, 750, 1500 and 2500 CFH.

LINDBERG ENGINEERING CO., Dept. CP, 2450 West Hubbard St., Chicago 12, Ill.

# FOR PRECISION CONTINUOUS BLENDING OF FLUIDS...

## AGAINST PRESSURES UP TO

### 5,000 LBS./IN<sup>2</sup>

# NEW!



## HEAVY-DUTY

*Wilson*  
**PULSAFEEDER**  
*Chemical Proportioning Pumps*

Designed for the particular needs of industrial process blending of fluids, this new direct-drive Pulsafeeder proportioning pump offers singular advantages. Hydraulically-balanced diaphragm head isolates piston and cylinder from fluids being pumped, eliminates need for packing glands, prevents contamination of product by pump, lubrication or packing; protects pump from corrosion or attack by fluid being pumped.

Box-type construction provides *sealed-in* lubrication, with all moving parts (except motor) running in an oil bath. Rate of flow *continuously adjustable while machine is in operation* by hand wheel, from zero to full maximum. Largest unit has maximum pumping rate of 800 gallons per hour. Literature and specifications on request. *Process Equipment Division, Lapp Insulator Co., Inc., 170 Maple St., LeRoy, N. Y.*

# Lapp Process Equipment

LAPP CHEMICAL PORCELAIN VALVES • PIPE • RASCHIG RINGS...  
WILSON PULSAFEEDER CHEMICAL PROPORTIONING PUMPS...

When inquiring specify CP A4759 . . . see information request blank, pgs. 2-3

## Mobile Sacking Scales for fast, Accurate 100 lb. Packaging . . .

Processors will welcome the new mobile EXACT WEIGHT Sacking Scales for filling, weighing and checking hundred pound bags from several hoppers where volume does not warrant stationary weighing equipment under all hoppers. These new units are exactly the same as the stationary installation type with two additional features (1) unit is mounted on a strong roller platform for mobility (2) the clam-shell valve is built directly on the scale frame. This gives you a complete sacking unit for fast, accurate packaging ready for instant use any place it is needed. Write for the special catalog which gives full details.



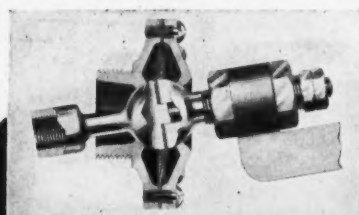
NEW!

**INDUSTRIAL PRECISION**  
**Exact Weight Scales**

**THE EXACT WEIGHT SCALE COMPANY**

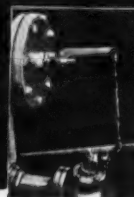
31 W. Fifth Ave., Columbus 8, Ohio  
Dept. E, 783 Yonge St., Toronto, Canada

When inquiring specify CP A4760 — see handy form pages 2-3



**why engineers insist on**  
**DAVIS DIA-BALL**  
**TRANSMISSIONS**

Davis No. 168D Float and  
Lever Tank Unit Flange  
mounted with Davis No.  
66B Packless Control Valve



The patented Davis Dia-Ball Transmission is a leak-proof, packless diaphragm ball transmission arm for Davis Liquid Level Controllers, Float Boxes and Float and Lever Units. Engineers recognize its superiority over the conventional packing box. Here's why: 1) Friction almost eliminated with ball and socket joint, insuring accurate power transmission; 2) Straightlined Power eliminates lost motion, minimizes friction, providing maximum accuracy and sensitivity; 3) Simple construction minimizes maintenance — no leaky shaft or stem packing — no packing box nuts to tighten; 4) Dangers inevitable with volatile or inflammable liquids are eliminated because of Dia-Ball leakproof feature. Write for details!

**DAVIS REGULATOR COMPANY**  
2562 S. Washtenaw Ave. Chicago 8, Illinois



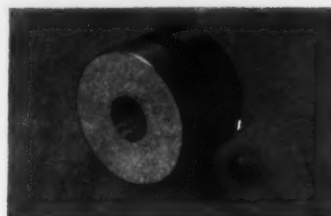
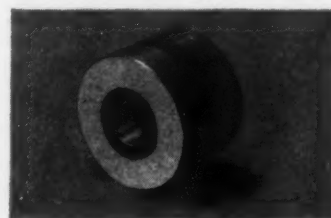
**DAVIS REGULATOR**  
**COMPANY**

When inquiring specify CP A4761 — see handy form pages 2-3

## Production

### 3,500,000 Tablets Per Die

*High production obtained with carbon inserted carbide dies without reversal or apparent wear*



Carbide, steel dies compared

Installation been down because of wear or die failure. In addition to these advantages, a better surface can be obtained on the tablets, with the elimination of lubricating difficulties.

**Description** — These "Malta" carbide dies are now being furnished in sizes from 1/8" solid drilled dies, and bushings, to 36" inserted drawing dies. Complete information on request.

JESSOP STEEL CO., Dept. CP, Washington, Penna.

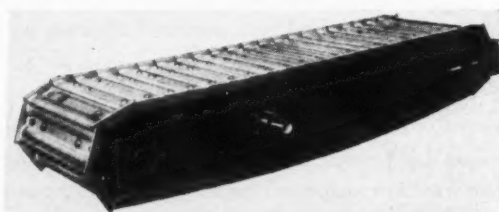
When inquiring specify CP A4762 — see handy form pages 2-3

## Heavy Duty Apron Conveyor Unit

*For ore, pit run gravel, rock and other materials*

**Uses** — This feeder is used widely under bins and hoppers for heavy lump materials such as ore and pit-run gravel and rock.

**Features** — It has exceptionally large capacity. At a nor-



Apron feeder has large capacity

mal speed of 10 feet per minute handling 100 lb. material, capacities of these standard units will run up to 80 tons per hour.

**Description** — This apron feeder is furnished in several widths and from centers ranging from a minimum of 4', 7" to a maximum of 9', 1" varied by 18 inch increments. Because the heavy steel chain belt rides directly on large diameter tractor rollers, it contributes to the belt's life and lower power consumption.

CHAIN BELT CO., Dept. CP, 1600 W. Bruce St., Milwaukee 4, Wis.

When inquiring specify CP A4763 — see handy form pages 2-3

## Skilled Lighting FOR SAFER LIGHTING

**Wheeler**  
**DUST-TIGHT**  
**Fluorescent**  
**Lighting Units**



### FOR HAZARDOUS LOCATIONS

For "Skilled Lighting" — For safety — use Wheeler DUST-TIGHT Fluorescent Fixtures. They meet Underwriters' requirements for Class II, Group C and F, and Class III and IV Hazardous Locations. They bring 64 years of engineering experience in safe lighting to many other locations where lamps, sockets and reflecting surfaces must be protected from non-combustible dusts and vapors.

Class II-C DUST-TIGHT Units are all-steel construction. Made in two and three lamp 48", 40-watt units. Available with Water-White Plate Glass, Tempered Clear Safety Plate Glass or Double Thick Plain Clear Glass hinged, dust-tight covers.

Write for complete data sheet Wheeler Reflector Company, 275 Congress St., Boston 10, Mass.; New York, N. Y. Representatives in principal cities

Distributed Exclusively by Electrical Wholesalers

**Wheeler REFLECTOR COMPANY**  
Lighting Equipment Specialists Since 1881

When inquiring specify CP A4764 — see handy form pages 2-3

## WIRE PRODUCTS

**STRAINERS**

• **FILTERS**

• **DIPPING BASKETS**

• **WIRE CLOTH**

• **FABRICATED PARTS**



Adequate facilities available to handle your requirements for wire-mesh and wire fabricated products. Every operation from drawing and weaving to finished product is done in a Jelliff plant — service and quality assured.

Lektromesh the mazing product of 1,000 uses — electrolytically deposited wire mesh in varying sizes and patterns. Write for literature.



**THE C. O. JELLIFF MFG. CORP.**

42 Pequot Road, Southport, Conn.

When inquiring specify CP A4765 — see handy form pages 2-3

CHEMICAL PREVIE



## Production

### Dispersite-Water Dispersed Rubber or Resin

*Used in binder, coating, saturating, adhesive applications*

**Uses** — Dispersite is the name assigned to a large group of products consisting of aqueous dispersions of crude rubber, reclaimed rubber, synthetic rubber, plastics, resins and resin compounds. It makes possible the use of plastics and reclaimed rubber just as natural latex has resulted in new and novel uses for rubber in fabricating articles commonly considered remote from the rubber industry. The man made latices may be used in a variety of applications which include: binders in cushioning carpets and rugs; also non-woven textiles and allied products. Saturating such fibrous materials as paper, felts, fabrics and cords and for use in artificial leather. Also coatings for metal, paper and as adhesives in the textile, paper, shoe, wood, fiber and foil fields.

**Description** — Dispersite, comprising aqueous dispersions of rubber or plastics, bears the same relation to the solid component in the dispersed phase as natural rubber latex does to the crude rubber present, and might properly be termed artificial or man-made latex. The actual dispersion process requires heavy duty, complex machinery and special technique. Since the original invention, made early in the 1920's, improvements have followed continuously. The process consists essentially in sub-dividing the plastic, rubber or similar material into particles of colloidal dimensions, and surrounding each particle with a hydrophylic protective coating, which permits the particles to remain in suspension in a dispersed condition. To accomplish this, the rubber, plastic or the like is blended and mixed with the necessary chemical and compounding materials on an open mill or in a Banbury mixer. The batch is transferred to a two bladed internal type mixer where the dispersing agent or colloid is added and while kneading, water is added slowly and worked into the mass. When the correct amount of water has been introduced, a change in phase takes place, with the water becoming the continuous phase while the rubber or plastic becomes the discontinuous or dispersed phase. The batch is diluted to the proper consistency, discharged into blending tanks.

DISPERSIONS PROCESS, INC., Dept. CP,  
1230 Avenue of the Americas, New York  
20, N. Y.

When inquiring specify CP A4766  
— see handy form pages 2-3

For more information on product at right, specify CP A4767  
... see information request blank between pages 2-3.



# HOT OFF THE PRESS

**NEW 1946**  
*Complete Guide to Easy*  
*Selection of Plastic*  
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*Job Tested Safety Clothing*



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**THE MILBURN COMPANY**

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Since 1865

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MANUFACTURERS OF CORROSION-RESISTANT  
MATERIALS AND EQUIPMENT

When inquiring specify CP A4768 — see handy form pages 2-3



**PERISHABLE  
TAKE CARE!**

WARD OFF HAND HAZARDS  
with **Surety SURESEAL SYNTHETIC  
RUBBER GLOVES**

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Send for your Surety Glove Selector  
—takes the guess work out of glove  
buying. Do it now!



THE **Surety** RUBBER COMPANY

CARROLLTON - OHIO

When inquiring specify CP A4769 — see handy form pages 2-3

## Production

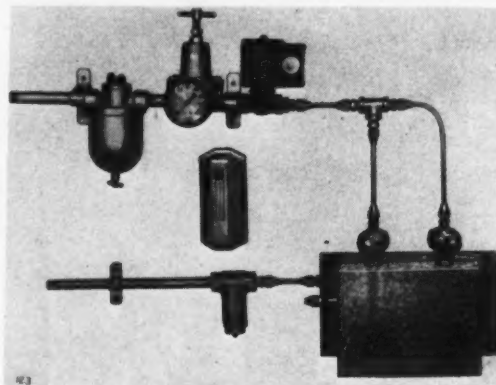
### Humidifying Nozzle Assembly Ready for Easy Installation

In 2 and 4 nozzle models with humidistat control

**Uses** — This industrial humidifying unit provides a finely atomized humidifying spray.

**Features** — The entire, compact unit is delivered ready for installation.

**Description** — The units are made in two and four nozzle types with humidistat control. The nozzles can be set at various angles to increase efficiency of moisture distribu-



Two nozzle humidifying unit

tion. Siphon type of humidifying nozzles are used which employ compressed air, mixed externally, producing an exceedingly fine, round (full cone) spray. A complete two nozzle unit is illustrated. Additional information is available on request. Catalog Number 22 contains data on nozzles and related equipment.

SPRAYING SYSTEMS CO., Dept. CP, 4036 West Lake St., Chicago 24, Ill.

When inquiring specify CP A4770 — see handy form pages 2-3

★

### Machine Washes, Rinses, Dries Cans Before or After Cooking

Available in range of sizes and incorporates  
desired sanitary features: easily cleaned

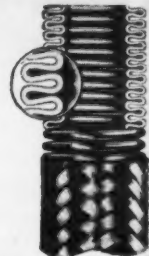
**Problem** — Rapid, efficient washing of canned foods and similar products after can has been closed and before or after cooking. One company, for example, has employed twenty girls to wipe each can by hand.

**Solution** — A recently designed machine cleans cans, removing oil, grease and particles of whatever is being packed. In operation, the cans come to machine on a conveyor belt which feeds them automatically to the belt of the washer. The cans travel through the machine and are washed, rinsed and dried before being discharged upright on the packing conveyor. The machine is steam heated. The machine incorporates all details essential to the cleanliness. Provision is made for easy inspection and cleaning of the machine. The washer is available in a variety of sizes to fill a range of requirements.

HOWARD ENGINEERING & MFG. CO., Dept. CP,  
2286 Buck St., Cincinnati 14, Ohio.

When inquiring specify CP A4771 — see handy form pages 2-3

## When the "heat's on"...



... use **REX-WELD!**

When the "heat's on," you can depend on REX-WELD Flexible Metal Hose for top-notch performance—even for temperatures up to 1000° F. What's more, rugged, leak-proof, corrosion-resistant REX-WELD safely withstands burst pressures up to 11,000 p.s.i.—depending on size.

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Flexible Metal Hose for Every Industrial Use

**CHICAGO METAL HOSE CORPORATION**  
MAYWOOD, ILLINOIS

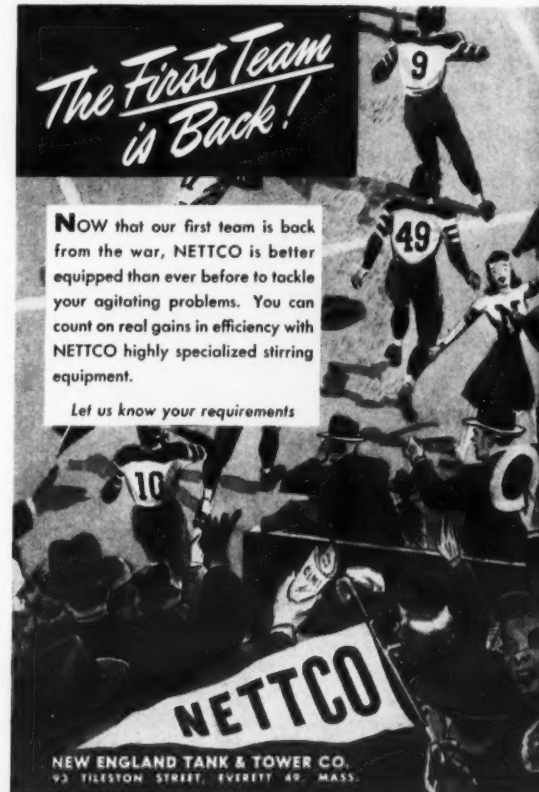
Plants: Maywood and Elgin, Ill.

When inquiring specify CP A4772 — see handy form pages 2-3

*The First Team  
is Back!*

NOW that our first team is back from the war, NETTCO is better equipped than ever before to tackle your agitating problems. You can count on real gains in efficiency with NETTCO highly specialized stirring equipment.

Let us know your requirements



**NETTCO**  
NEW ENGLAND TANK & TOWER CO.  
93 TILSTON STREET, EVERETT 49, MASS.

When inquiring specify CP A4773 — see handy form pages 2-3

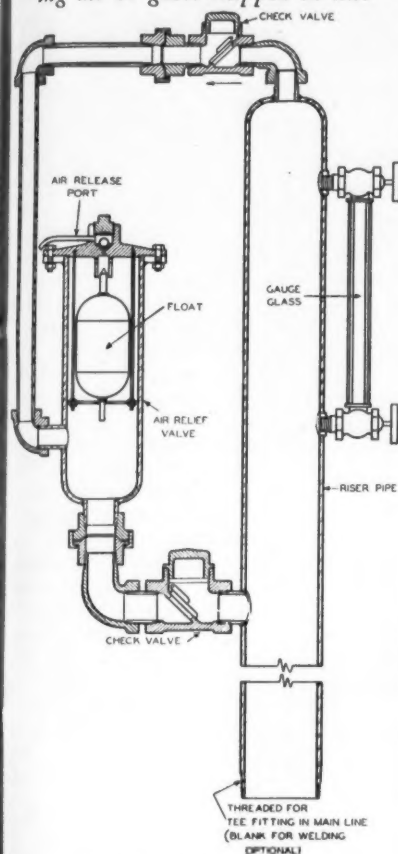
CHEMICAL PREVIEW



## Production

### Pipe Line Relief Valve

Provides effective method of removing air or gases trapped in line



Valve for air, gas removal

**Uses** — For installation at the high point of pipe lines as means of removing air or gases trapped in the line, which otherwise tend to build up in volume and pressure.

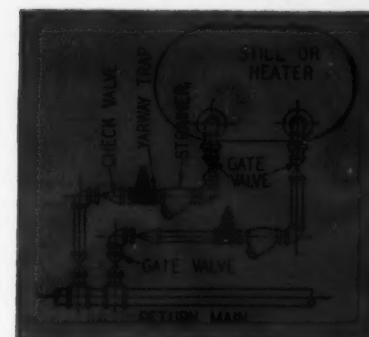
**Description** — Gases and liquids (see diagram) are forced up riser pipe by the pressure in the line, filling the piping, and causing the float to rise, thus closing the air release port. As more and more air accumulates, the level of the liquid is forced lower and lower — the float drops down opening the release port, and letting the air and gas escape to the atmosphere. These Ococo V-404 Air Relief Valves are furnished complete with liquid level gauge — with riser threaded to screw into a T fitting, or blank for welding to the pipe line. 2", 3", 4", 6", 8", 10" and 12" sizes. JOHNSTON & JENNINGS CO. (Ococo Div.), Dept. CP, Cleveland 14, Ohio.

When inquiring specify CP A4774  
— see handy form pages 2-3

For more information on product at right, specify CP A4775  
... see information request blank between pages 2-3.



**TYPICAL APPLICATION** — Yarway Impulse Steam Traps with Yarway Fine-Screen Strainers draining liquid heater.



# making steam trap history

Nearly half a million Yarway Impulse Steam Traps have been bought in less than ten years. Why? Just consider these Yarway features:

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No levers, buckets, weights, bellows or floats. The only moving part is a simple valve. Result—Easy maintenance and small inventory of parts.

#### SMALL SIZE . . . LIGHT WEIGHT

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#### GOOD FOR ALL PRESSURES

Yarways are good for all pressures within a broad range without change of valve or seat. Factory set.

#### EFFICIENT OPERATION

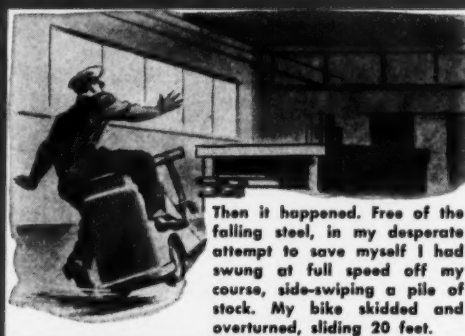
Use of a unique thermodynamic principle makes Yarways discharge condensate *continuously* under heavy loads, getting equipment hotter, sooner . . . and *intermittently* under light loads, maintaining peak efficiency.

#### LOW COST

Often it costs no more for new Yarways than to repair old type traps. See your nearest Mill Supply Dealer or write for Bulletin T-1739

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**YARWAY IMPULSE STEAM TRAP**



MODEL  
18 AK

General's CD-SNO FOG carbon dioxide fire extinguisher is Underwriters' Approved for electrical, gasoline, oil, paint, and chemical fires. Sudden death to fire yet harmless as a baby's breath. Wide range of sizes. Write for descriptive literature. Send us your own most interesting fire experience. A \$25.00 prize each month for the best.

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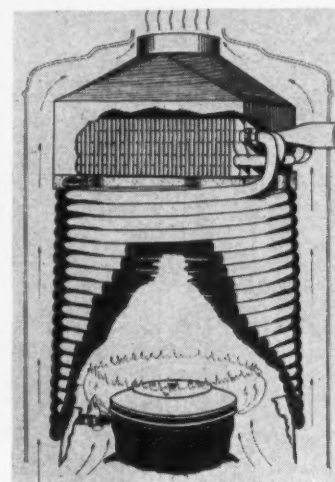
CHICAGO DALLAS NEW YORK  
West Coast Affiliate: The General Pacific Corp.

IF IT'S **GENERAL** IT'S DEPENDABLE

Remember you need fire extinguishers in your home and automobile

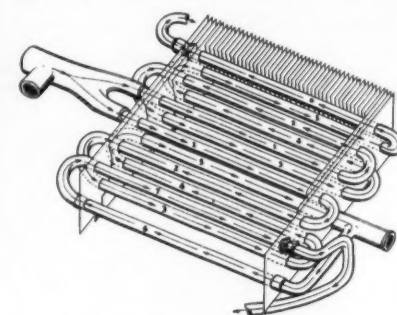
## Production

### Water Heater Has High Efficiency



View shows distribution of heat input

ter up to 140 degrees is required, this heater furnishes both at the same time. The heater maintains 140 degree water in a tank from which it can be drawn as desired,



View shows double path of water travel through exchanger

loss is essential for combustion. This unit allows for a flue loss of 12 per cent, while its total loss is only 15%, or a radiation loss of 3 per cent.

**Description** — Water enters the unit at the top, then flows downward through tubing coiled in such fashion that it becomes the wall of the combustion chamber and the flowing water absorbs heat which would otherwise radiate through the wall. As an instantaneous heater it performs its essential function of furnishing hot water at the turn of the tap. As a recovery system it stores hot water in a tank and recovers the heat loss when water is drawn from it. As a booster it takes water already heated by a furnace or other means and boosts it to superheat as desired. As a booster-recovery system it provides two-temperature water as described above. Furthermore, its capacity is practically unlimited, since the heaters can be connected in batteries. Water outlet temperatures are maintained within two degrees of the thermostat setting through a thermostatic control which increases or decreases the gas supply as the flow of water is varied. The burner provides two stages of primary air and an auxiliary supply of secondary air to insure combustion of gases that might otherwise be unburned. The burner selects the correct proportion of "gas-air" so that high thermal efficiency is maintained

CHEMICAL PREVIEW

When inquiring specify CP A4776 . . . see information request blank, pgs. 2-3



## Production

throughout varying rates of gas input. Flashbacks cannot occur. The heat exchanger in which multiple metal fins surround and support the tubing, exposes 30 square feet of heat transfer area to a total water content of only four pints. Naturally, heat absorption approaches theoretical maximum, heat transfer is exceptionally rapid and the resulting low stack temperatures cut heat loss to a minimum. The SMITHway-Burkay has a capacity of from 190,000 to 195,000 b.t.u.'s per hour, heating 125 gallons of 180 degree water a day.

A. O. SMITH CORP., Dept. CP, Milwaukee 1, Wisc.

When inquiring specify CP A4777 — see handy form pages 2-3

## Blowers for Cleaning and Spraying Operations

*Attachments convert them to wide range of applications*

**Uses** — These versatile portable blowers find application in a wide range of utility operations. They are very serviceable in cleaning motors. A selection of accessories makes it possible to adapt them for vacuum cleaning of stockbins and shelving or for spraying insecticides; also for spraying paint.

**Description** — The blowers are available in several models. Of particular interest is the Model 10A, an unusually powerful unit with capacity for cleaning large motors and machinery. It attaches to any socket and has full 1 HP G.E. Universal motor. No oiling — net weight is 14 pounds. Another blower — Model A has a heating element providing for either hot or cold air. Bulletin describing this complete series of blowers and attachments is available.

SEEDBURO EQUIPMENT CO., Dept. CP, 223 West Jackson Blvd., Chicago 6, Ill.

When inquiring specify CP A4778 — see handy form pages 2-3

## Gear Type Hydraulic Pump

*For systems ranging from 100-2000 psi*

**Uses** — For delivering pressures up to 2000 psi with 5½ gpm at 2800 rpm. It is suitable for hydraulic systems ranging from 100 to 2000 psi such as on hydraulic presses, machine tool feed controls, hydraulic jacks, and other uses.

**Description** — Volumetric efficiency using SAE #10 oil is above 90%. Overall efficiency above 500 psi is 85% or better. The pump uses Nitralloy gears in C. I. body of sandwich design. It provides ample porting to standard pipe sizes, and mounting flange adaptable to users' equipment. The unit is approximately a 3½ inch cube, with ½ inch diameter x 11/16 inch drive shaft extension, plus threaded portion for ¾ inch nut. Design and selection of materials permits easy and economical conversion in event of wear.

ARO EQUIPMENT CORP., Dept. CP, Bryan, Ohio.

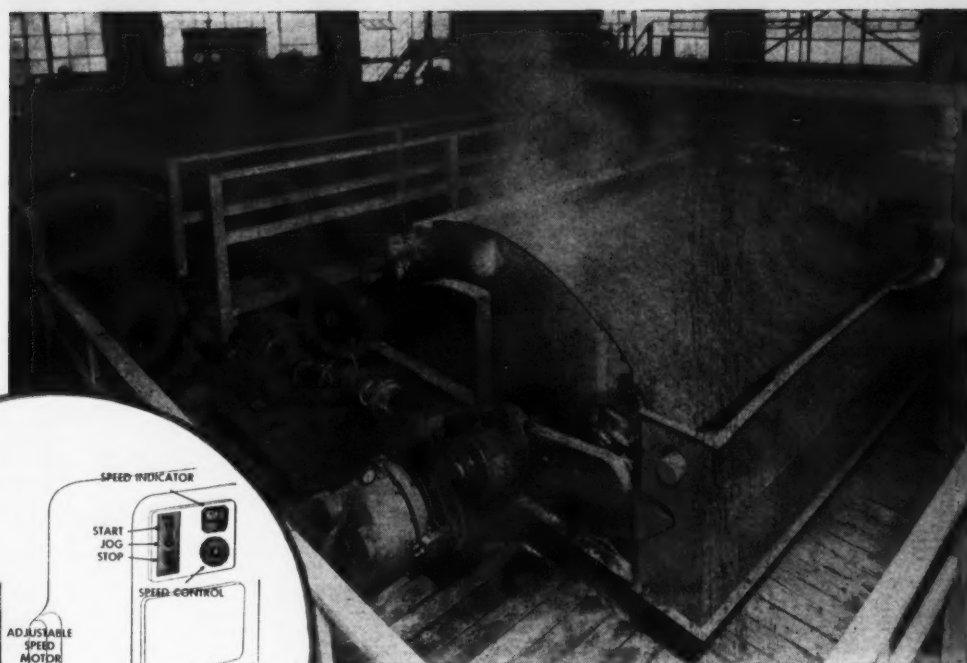
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MAY - JUNE, 1946

# SPEEDS



*Conveniently-packaged, space-saving V\*S Drives are available in either Rotating or Electronic Systems or a combination of both systems.*



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**PRODUCTION**  
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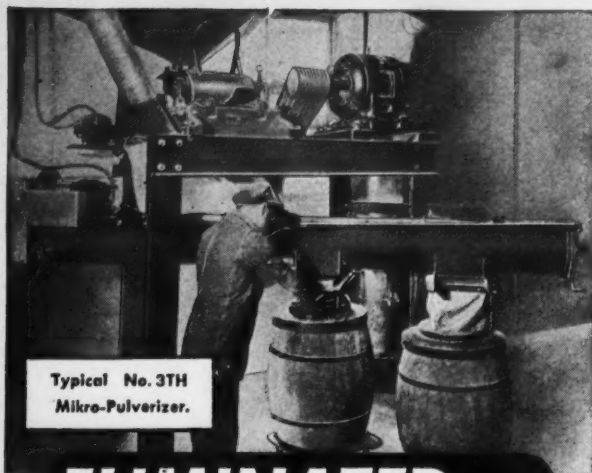
**RELANCE ELECTRIC & ENGINEERING CO.**  
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# RELANCE<sup>AC</sup><sub>DC</sub> MOTORS

*"Motor-Drive is  
More Than Power"*

When inquiring specify CP A4780 . . . see information request blank, pgs. 2-3

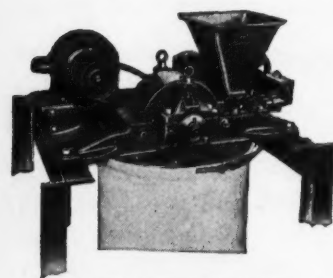


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2 mills  
7 motors  
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When inquiring specify CP A4781 — see handy form pages 2-3

## Discussed in This Issue - - - MACHINERY, EQUIPMENT and

Use this "quick-locator" when you want information on a specific type of machine, equipment or material. Everything discussed in this issue is given here, with page references. After checking the information here, if you want more data you can write manufacturer direct . . . or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the Publisher . . . no obligation or charge, of course. The Publishers contact the proper manufacturers for you . . . information comes to you direct.



<b>A</b>		Controllers, Pressure .67, 69, 93	Filters .30, 109	Instrument Maintenance .10
Abraser .66		Controls, Humidity .56, 70	Filters, Air .77	Insulating Cement .42
Acetonitrile .32		Controls, Level .69, 126	Filters, Porous Stone .105	Insulating Material, Glass .70
Actuator .68		Controls, Liquid Level .22, 56,	Filters, Rotary .88	Insulating Method .4
Adhesives .36, 45, 48, 51		62, 71	Fire Protection Equipment .99, 130	Intermediates .53
Agitators .12, 13, 128		Controls, Motor .71	Fittings, Welding .20	Isopropylamine .30
Alarm Systems .71		Controls, pH .7, 16, 57	Floors, Stainless Steel .67	
Alcohol, Furfuryl .44		Controls, Pump & Compressor .82	Floor Patch .134	<b>J</b>
Alkylation Process .49		Controls, Sanitary Level .57	Floor Surfactant .51	Jackets, Kettle .76
Alloy Fabrications .62		Controls, Temperature .3, 56, 95	Flour, Soya .49	Jacks, Flange .49
Analyzers, Electrolytic .55, 64		Coolers .87	Fluorides .38	Joints, Butt-Welded .72
Aprons, Plastic .114		Coolers, Crane Cab .91	Fluorspar Filtration .8	Joints, Rotary Pressure .105
<b>B</b>		Conveyors .14, 23, 29, 37, 40, 58,	Furnaces, Box .61	Joints, Rotating Water .9
Bag Liners .112		95, 99	Furnaces, Electric .62	Joints, Swivel .8
Bags .86		Conveyors, Continuous .37	Furnaces, Hydriding .124	
Bags, Paper .16, 17		Conveyors, Pneumatic .99	Furnaces, Laboratory .56	<b>K</b>
Batteries, Flashlight .48		Conveyors, Portable .40, 95		Kettle Jackets .76
Bellows, Stainless Steel .122		Conveyors, Screw .29, 58		Kettles .27, 48, 112
Bins, Storage .110		Conveyors, Trolley .14, 95		Kettles, Mixing .40
Blinds, Line .121		Couplings .77, 100, 102, 116		Kettles, Nickel Alloy .112
Blowers .109, 131		Couplings, Flexible .100, 102, 116	<b>G</b>	
Blowers, Portable .131		Cream, Protective .44	Gas, Carbonic .40	<b>L</b>
Boiler Blowdown Data .84		Crushers, Jaw .85	Gaskets, Pressure Sealed .11	Labels, Removable .99
Brake, Magnetic Disc .109			Gaskets, Ring .15	Laboratory Equipment .64, 90
Bromine Products .50		<b>D</b>	Gauges .52, 53, 61, 69	Laboratory Furniture .60
Brushes, Power .91		DDT Products .41	Gauges, High Vacuum .52	Laminates, Silicone-Glass .50
Buckets, Chemical Handling .74		De-foamers, Silicone .12	Gauges, Instrument .61	Lamps, Ultraviolet .15
<b>C</b>		Degreasant .48	Gauges, Liquid Level .65	Latices, Compounded .47
Calcium Carbonate .47		Dehydration Units .87	Gauges, Pressure .53	Lifting Machines .86
Carbonic Gas .93		De-ionizing Units .88	Gears .92	Lighting Fixtures .73, 97, 126
Carrot Oil Vitamin .44		Demineralizers .88	Generators, Steam .76	Line Blinds .121
Catalysts .50		Detector, Refrigerant Leak .111	Geon Polyvinyl Materials .40	Liners, Bag .112
Caustic Soda .47		Detergents, Soapless .32	Glass, Industrial .45	Lubricating Systems .86, 119
Cells, Gas Analysis .83		Determinator, Moisture .62	Glassware, Laboratory .54	
Centrifugals .86		Determinator, Particle Size .64	Glossmeter .75	<b>M</b>
Chains, Roller .100		Dies, Carbide .126	Glove Guard .113	Magnets, Non-Electric .72
Channels, Stainless Steel .109		Dispersions, Rubber .127	Gloves, Neoprene .27, 28, 88	Magnets, Spout .104
Chemicals .32, 33, 34, 35, 38, 39,		Drives, Adjustable Speed .131	Gloves, Synthetic Rubber .128	Masks, Gas .68
47		Drives, Roller Chain .100	Governors, Pump .93	Masonry, Corrosion-Resistant .81
Chemical Formulary .82		Drums, Steel .124	Grizzlies, Vibratory .120	Mats, Fiberglass .95
Chemical Stoneware .78		Dryers .44, 73, 97		Matting, Neoprene .95
Chlorine .47		Dryers, Spray .96	<b>H</b>	Mechanism, Control .68
Clamps, Wire Rope .94		Dryers, Truck .120	Handling Equipment .23, 24, 74,	Metals and Alloys Dictionary .82
Cleaning Machine .17, 99		Dry Ice .40	85, 86, 99, 100	Meters, Flow .52, 63, 73
Cleaning Machine, Sewer .99		Drying Systems .77, 108	Handling Equipment, Pneumatic .85	Meters, Liquid .60
Cleaners .38, 51, 87		Dust Collectors .16, 51, 109, 113	Heads, Safety .31	Meters, Rate of Flow .64
Cleaners, Air .114		<b>E</b>	Heaters, Dielectric .96	Meters, Smoke-Density .62
Cleaners, Steam .98		Ejectors, High Vacuum .19	Heaters, Electric .117	Meters, Steam .52
Cleaners, Tube .120		Ejectors, Steam-Jet .76	Heaters, Immersion .55, 104, 133	Meters, Watt-demand .60
Closers, Bags .108		Encyclopedia, Hydrocarbon Com- pounds .46	Heaters, Water .130	Micrometers .69
Closers, Carton .21		Essential Oils .80	Hoists, Electric .30, 104	Microscope and Its Use .82
Cloth Wire .85		Ethyl Silicate .41	Homogenizers .80	Mills, Jar .86
Clothing, Safety .85, 127		Exchangers, Heat .49, 50, 81, 83,	Hose for Blowers .114	Mills, Pebble & Ball .62
Coating, System for Applying .100		95, 110	Hose, Metal .128	Mixers .5, 12, 13, 75, 101,
Coatings, Plastic Cork .46		Extinguishers, Fire .99, 130	Humidifier .128	106, 120
Coatings, Protective .37, 39, 43		<b>F</b>	Hydrogen, Canned .46	Mixers, Jet .17
Coatings, Rustproof .122		Fabrics, Industrial .46	Hydrogen Production Data .78	Mixers, Portable .12, 13
Coatings, Waterproofing .71		Facings, Corrosion Resistance .114	Hydrometers .68, 83	Mixing Device, Gas .56
Codes, Dust Explosion .79		Fans .92		Modifier, Paraffin .52
Compound, Bottle Washing .51		Fans, Exhaust .92	<b>I</b>	Molding Machine, Injection .118
Compressors, Air .113, 118		Fastenings .85, 98	Idlers, Belt .105	Monomethylamine .35
Compressors, Ammonia .80		Feeder, Apron .126	Impingers, Midget .67	Motors .101, 118
Condensate Return .116		Feeders .90	Indicator, Dew Point .58	Motors, Air .118
Conduit, Steam Pipe .50		Fillers, Vacuum Bottle .106	Indicator, Flow Rate .53	Mounts, Vibration .94
Conduits, Prefabricated .9		Filter Bases .16	Indicators, Oxygen .52	Multi-Ranger .73
Connections, Flanged .100		Filter Media .42, 94	Infrared Units .96	
Centrifugals .84		Filter Presses .22, 113	Insect Control, Mechanical .51	
			Insecticide concentrates .37	
			Instrumentation Booklet .66	



# nd MATERIALS

N  
Naphthalene .....115  
Nozzles, Spray .....68, 70, 102

O  
Ovens .....58, 60, 69, 73, 96  
Ovens, Industrial .....60  
Ovens, Laboratory .....58  
Ovens, Paint Brush Process .....96  
Ovens, Truck Type .....73  
Oxalates .....39  
Oxide, Beryllium .....51

P  
Packaging Materials .....43, 115  
Packer-Weighers .....114  
Packing, T Ring .....120  
Packings, Mechanical .....89  
Packings, Metallic .....111  
Paint, Aluminum .....122  
Paint, Corrosion-Resistant .....128  
Paints .....100  
Paraffins, Chlorinated .....50  
Pencils, Refillable Draftman's .....58  
Permanite .....41  
pH Controls .....7, 16  
pH Equipment .....14, 57, 63  
Photocopy Equipment .....63, 84  
Photoelectric Colorimeter .....72  
Pillow Blocks .....72

Pipe .....44, 81, 123  
Pipe, Glass .....123  
Pipe, Plastic .....44  
Pipe Reamers .....26  
Plastics .....91  
Plates, Name .....2, 112  
Plugs, Tank Lead .....123  
Polystyrene Powder .....42  
Porcelain, Chemical .....4th Cover  
Power Units .....54  
Probe, High Frequency .....76  
Processing Equipment .....3, 22, 28,  
.....72, 80, 89, 92, 94, 110,  
.....125, 3rd Cover

Propellers for Mixers .....116  
Proportioners, Gas .....56  
Pulleys, Car .....105  
Pulley, Conveyor .....102  
Pulverizers .....132  
Pump Selection, Guide to .....90  
Pumps .....2nd Cover, 10, 11, 24,  
.....26, 28, 30, 40, 42, 67, 74,  
.....79, 81, 82, 90, 91, 93, 94,  
.....98, 102, 103, 106, 110, 113,  
.....118, 125, 131  
Pumps, Acid-Handling .....10  
Pumps, Centrifugal .....26, 40  
Pumps, Diaphragm .....103  
Pumps, Gearless .....103  
Pumps, Hydraulic .....131  
Pumps, Proportioning .....2nd Cover,  
.....93, 125  
Pumps, Rotary .....102, 110  
Pumps, Slurry .....11  
Pumps, Vacuum .....24, 28, 42,  
.....67, 82, 118  
Pumps, Vertical Turbine .....79  
Pyrocon .....63  
Pyrometers .....66, 117  
Pyrophosphates .....34

R  
Reamers, Pipe .....26  
Receptacles, Heavy Duty .....75  
Recorders .....56  
Reducers, Speed .....92, 93, 124  
Refractories, Oxide .....49  
Regulators, Pressure .....67, 69, 93  
Reinforcement, Floor .....112  
Relays .....66, 70, 74  
Relays, Magnetic .....66  
Relays, Plug-in .....35, 36  
Resins .....35, 36  
Resins, Anion Exchange .....48  
Resins, Polymerized .....79  
Resins, Tackifying .....89  
Rheostats, Close Control .....69  
Rolling Machines, Jar .....86  
Rolls .....122  
Roumeters .....69

S  
Safety Clothing, Plastic .....127  
Saws .....93, 119  
Saws, Masonry .....93  
Scales .....82, 98, 112, 126  
Scales, Dial .....98  
Screens, Matching .....86

Screens, Sizing & Dewatering .....102  
Screens, Vibrating .....90, 108  
Seal, Pipe Joint .....40  
Separators, Air Centrifugal .....124  
Separators, Spout Type .....134  
Shovels, Power .....106  
Sifters .....66  
Silica Gel .....47  
Skids .....100  
"Soap in Industry" Booklet .....78  
Soda Ash .....47  
Softeners, Water .....81  
Sorter, Electronic .....116  
Spectrometers .....103  
Steamer, Cotton Process .....87  
Steel, Stainless-Clad .....51, 116  
Steel Strap .....115  
Stirrers, Laboratory .....91  
Stitchers, Carton .....21  
Stocks, Silicone Rubber .....33  
Stoneware, Acid-Handling .....74, 78  
Strainers .....14  
Strapping, Steel .....93, 115  
Stroboscope, Portable .....60  
Surface Measurement .....92  
Switch, Cam-Lever .....57  
Switch, Temperature Control .....65  
Switches, Foot .....94  
Switches, Pressure Float & Vacuum .....82

T  
Tachometers .....55  
Tanks, Compound .....121  
Tanks, Glass .....68  
Tanks, Wooden .....107  
Tester, Industrial Circuit .....76  
Testers, Moisture .....64  
Tests, Mercerization .....93  
Thermometers 54, 58, 68, 69, 70, 83  
Threaders, Pipe .....27  
Timers .....58, 60  
Timers, Electronic .....58  
Towers, Cooling .....91  
Tractors, Hand .....110  
Transmission Arm .....126  
Traps, Steam 71, 75, 82, 95, 129  
Trays, Silica Ware .....98  
Trucks, Barrel & Drums .....63  
Trucks, Fork .....66  
Trucks, Industrial .....24, 26, 42  
Trucks, Lift .....4, 48, 83  
Tubes, Cathode-Ray .....59  
Tubes, Furnace .....49  
Tubes, Thermocouple .....74  
Tubing, Aluminum .....36  
Tubing, Metal .....87

V  
V-Belts .....107  
Valve, Gathering Line .....13  
Valves .....13, 15, 50, 59, 70, 73,  
.....74, 82, 88, 90, 92, 93, 95,  
.....105, 106, 108, 110, 122, 124, 129  
Valves, Air Relief .....129  
Valves, Blow-Off .....90  
Valves, Check .....70, 105  
Valves, Control .....59  
Valves, Diaphragm .....122  
Valves, Gate .....90, 110  
Valves, Lift Check .....15  
Valves, Non-Return .....90  
Valves, Pressure Reducing .....93  
Valves, Relief .....92, 108  
Valves, Shut-Off .....88  
Valves, Slide .....124  
Valves, Solenoid .....73  
Valves, Stainless Steel .....73, 106  
Valves, Three-Way .....50  
Vapor Absorption Book .....82  
Ventilation Equipment .....104  
Vibrators .....90  
Viscosimeters .....54, 65, 77  
Voltmeter, Vacuum Tube .....77

W  
Washers, Can .....128  
Washfountains .....122  
Water Plant Operators Book .....82  
Water Treatment .....34, 88  
Water Unit, Chilled .....100  
Waxes .....46, 49  
Welding Data .....104  
Wetting Agents .....34  
Winches, Hand .....105  
Wire Cloth .....85  
Wire, Fabricated Parts .....126



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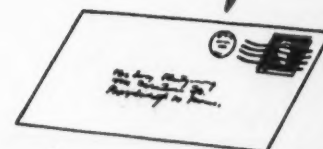
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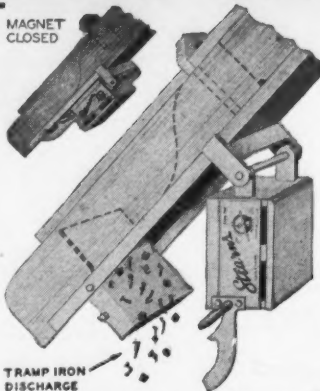
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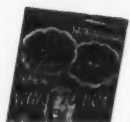
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# Advertisers in This Issue

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Abbe Engineering Co. ....62, 86	Durametallic Corp. ....111
Acme Steel Company ....21, 115	Duriron Company ....92
Air Reduction Sales Co. ....56	E
Airetool Mfg. Co. ....120	Eagle-Picher Company ....42
Ajax Flexible Coupling Co. ....116	Eastern Engineering Co. ....74
Alberene Stone Corp. ....90	Eclipse Air Brush Co. ....106
Allen-Sherman-Hoff Co. ....85	Economy Engineering Co. ....86
Allis-Chalmers Mfg. Co. ....96	Edge Moor Iron Works Inc. ....89
Allmetal Screw Co. ....85	Edmont Mfg. Co. ....28
Alloy Mfg. Company ....62	Edward Valves Inc. ....90
Alloy Steel Products Co. ....110	Elwell-Parker Electric Co. ....24
Alsop Engineering Corp. ....30	Emulsol Corp. ....32
Aluminum Company of America 36	Eriez Mfg. Company ....72
Alvey-Ferguson Company ....14	Ertel Engineering Corp. ....106
American Air Filter Co. ....77	Exact Weight Scale Co. ....126
American Mat Corp. ....95	F
American Monorail Co. ....24	Fairbanks, Morse & Co. ....79
American Photocopy Equipment Company ....63	Farris Engineering Co. ....108
American Tool & Machine Co. ....84	Farval Corp. ....119
American Ventilating Hose Co. ....114	Filter Media Corp. ....94
Amersil Co., Inc. ....98	Flexrock Company ....71, 134
Anderson Co., V. D. ....82	Fostoria Pressed Steel Corp. ....96
Armstrong Machine Works ....75	Foxboro Company ....52
Associated Bag & Apron Co. ....114	G
Aurora Pump Company ....98	Gast Mfg. Company ....118
Automatic Switch Co. ....73	Gates Rubber Co. ....107
Automatic Temperature Control Company ....60	Gehrich Oven Div., W. S. Rockwell Co. ....69
Automatic Transportation Co. ....83	General Box Company ....100
Avery Adhesives Co. ....99	General Ceramics & Steatite Co. 78

B	General Chemical Company ....38
Baker-Raulang Company ....42	General Detroit Corp. ....130
Barber-Colman Company ....54	General Electric Co. ....101, 117
Barco Oil Company ....46	Groen Mfg. Co. ....48
Bartlett & Snow Company ....105	H
Beach-Russ Company ....24	Hamer Oil Tool Co. ....121
Black, Sivalis & Bryson Inc. ....31	Hardinge Co., Inc. ....44
Blackmer Pump Company ....110	Harper Co., H. M. ....98
Blaw-Knox Company ....3rd Cover	Haveg Corp. ....44
Blickman, Inc., S. ....22	Haynes Stellite Co. ....114
Brookfield Engineering Laboratories ....65	Hays Corp. ....64
Bruning Co., Inc., Chas. ....58	H-B Instrument Company ....68
Buflovak Equipment Div., Blaw-Knox Company ....27	Hendrick Mfg. Co. ....86, 112
Builders-Providence Inc. ....52	Hetherington & Berner ....63
Bump Pump Company ....94	Hills-McCanna Co. ....122
Burcott Mills ....46	Hough Co., Frank G. ....106
Buschman Co., E. W. ....40	Hunt Machine Co., Rodney ....122
B/W Controller Corp. ....62	Huppert Co., K. H. ....56

C	I
Cambridge Instrument Co. ....66	Ideal Industries Inc. ....48
Cardox Corp. ....99	Illinois Testing Laboratories ....63
Cash Company, A. W. ....69	Illinois Water Treatment Co. ....88
Chase Bag Co. ....112	Industrial Oven Engineering Co. ....100
Chemical Publishing Company ....82	Ingersoll-Rand Company ....76
Chicago Float Works Inc. ....67	Ingersoll Steel & Disc ....51
Chicago Metal Hose Corp. ....128	Instant Drying Corp. ....77
Chiksan Company ....8	International Engineering Co. ....75
Clark Tractor Co. ....66	International Nickel Co. ....102
Clayton Mfg. Company ....74	J
Cleaver-Brooks Company ....76	Jelliff Mfg. Corp., C. O. ....126
Cleveland Worm & Gear Co. ....92	Jerguson Gage & Valve Co. ....65
Clipper Mfg. Company ....93	Jessop Steel Co. ....116
Cochrane Corp. ....88	Johnson Corp. ....22, 105
Coe Mfg. Company ....95	Jones Foundry & Machine Co. ....124
Commercial Solvents Corp. ....35	K
Consolidated Engineering Co. ....103	Kemp Mfg. Co., C. M. ....97
Cooper Alloy Foundry Co. ....106	Kewaunee Mfg. Co. ....60
Corning Glass Works ....54, 123	Kinney Mfg. Co. ....42
Crane Company ....20	Kirk & Blum Mfg. Co. ....60
Crane Packing Company ....40	Knight Co., Maurice A. ....49

D	L
Davis Regulator Company ....126	LaBour Co., Inc. ....40
Despatch Oven Company ....58	Lammert & Mann Co. ....28
Diamond Alkali Company ....50	Lapp Insulator Co., Process Equipment Div. ....125
Diamond Chain & Mfg. Co. ....100	Lapp Insulator Co., Chemical Porcelain Div. ....136
Dings Magnetic Separator Co. 104	Leeds & Northrup Company ....14
Distributing & Trading Co. ....49	
Dodge Mfg. Company ....9	
Dracco Corp. ....99	

du Pont de Nemours & Co. ....41	Leslie Company ....93
Durametallic Corp. ....111	Lift Trucks, Inc. ....4
Duriron Company ....92	Lincoln Engineering Co. ....86
E	Lindberg Engineering Co. ....61
Eagle-Picher Company ....42	Link-Belt Company ....29, 108
Eastern Engineering Co. ....74	Liquidometer Corp. ....60
Eclipse Air Brush Co. ....106	Logan Engineering Co. ....114
Economy Engineering Co. ....86	Lovejoy Flexible Coupling Co. ....102
Edge Moor Iron Works Inc. ....89	Ludlow Valve Mfg. Co. ....88
Edmont Mfg. Co. ....28	Lumenite Electronic Co. ....56
Edward Valves Inc. ....90	M
Elwell-Parker Electric Co. ....24	Marco Company ....80, 81
Emulsol Corp. ....32	Marley Company Inc. ....91
Eriez Mfg. Company ....72	Marsh Corp., Jas. P. ....70
Ertel Engineering Corp. ....106	Mason-Neilan Regulator Co. ....59
Exact Weight Scale Co. ....126	Mayer Corp. ....112
F	Metal Hydrides Inc. ....46
Fairbanks, Morse & Co. ....79	Michigan Wheel Company ....116
Farris Engineering Co. ....108	Milburn Company ....127
Farval Corp. ....119	Milton Roy Company ....7
Filter Media Corp. ....94	Mine Safety Appliances Co. ....68
Flexrock Company ....71, 134	Mitchell & Co., W. K. ....72
Fostoria Pressed Steel Corp. ....96	Mixing Equipment Co. ....12, 13
Foxboro Company ....52	Monsanto Chemical Co. ....33
G	Moore Products Co. ....67
Gast Mfg. Company ....118	Mortell Co., J. W. ....46
Gates Rubber Co. ....107	Multiplex Mixers ....120
Gehrich Oven Div., W. S. Rockwell Co. ....69	Mystic Adhesive Products Co. ....48
General Box Company ....100	N
General Ceramics & Steatite Co. 78	National Annealing Box Co. ....94
General Chemical Company ....38	National Carbon Co. ....100
General Detroit Corp. ....130	National Drying Machinery Co. ....120
General Electric Co. ....101, 117	National Research Corp. ....87
Groen Mfg. Co. ....48	National Starch Products Co. ....51
H	National Technical Laboratories ....57
Hamer Oil Tool Co. ....121	Neff & Fry Company ....110
Hardinge Co., Inc. ....44	New England Tank & Tower Co. ....128
Harper Co., H. M. ....98	Newark Wire Cloth Co. ....85
Haveg Corp. ....44	Niacet Chemicals Co. ....32
Haynes Stellite Co. ....114	Niagara Blower Co. ....50
Hays Corp. ....64	Nicholson & Co., W. H. ....71
H-B Instrument Company ....68	Northern Engineering Works ....104
Hendrick Mfg. Co. ....86, 112	Norton Company ....49
Hetherington & Berner ....63	O
Hills-McCanna Co. ....122	Ohmite Mfg. Co. ....69
Hough Co., Frank G. ....106	Oliver United Filters Inc. ....10, 11
Hunt Machine Co., Rodney ....122	Owen Bucket Company ....74
Huppert Co., K. H. ....56	Owens Corning Fiberglas Corp. ....78

I	P
Ideal Industries Inc. ....48	Palmer Company ....54
Illinois Testing Laboratories ....63	Palo-Myers Inc. ....64
Illinois Water Treatment Co. ....88	Pangborn Corp. ....113
Industrial Oven Engineering Co. ....100	Patterson Foundry & Machine Co. ....72
Ingersoll-Rand Company ....76	Patterson-Kelley Co. ....110
Ingersoll Steel & Disc ....51	Peerless Pump Co. ....26
Instant Drying Corp. ....77	Persson Co., T. G. ....49
International Engineering Co. ....75	Pfaudler Company ....3
International Nickel Co. ....102	Phizer & Co., Chas. ....39
J	Pioneer Rubber Co. ....27
Jelliff Mfg. Corp., C. O. ....126	Pittsburgh Plate Glass Co. ....68
Jerguson Gage & Valve Co. ....65	Porter Co., H. K. ....5
Jessop Steel Co. ....116	Powers Regulator Co. ....56
Johnson Corp. ....22, 105	Precision Thermometer & Instrument Co. ....54
Jones Foundry & Machine Co. ....124	Pressed Steel Tank Co. ....124
K	Proctor & Schwartz, Inc. ....37
Kemp Mfg. Co., C. M. ....97	Proportioneer's, Inc. ....2nd Cover
Kewaunee Mfg. Co. ....60	Prufcoat Laboratories ....43
Kinney Mfg. Co. ....42	Pulverizing Machinery Co. ....132
Kirk & Blum Mfg. Co. ....60	Pure Carbonic, Inc. ....40
Knight Co., Maurice A. ....49	Q
L	Quaker Oats Company ....44
LaBour Co., Inc. ....40	R
Lammert & Mann Co. ....28	Rapids Standard Co. ....95
Lapp Insulator Co., Process Equipment Div. ....125	Reliance Electric & Engineering Company ....131
Lapp Insulator Co., Chemical Porcelain Div. ....136	Richmond Mfg. Company ....66
Leeds & Northrup Company ....14	

Lincoln Engineering Co. ....86	Ric-Wil Co. ....93
Lindberg Engineering Co. ....61	Ridge Tool Co. ....91
Link-Belt Company ....29, 108	Robbins & Co. ....86
Liquidometer Corp. ....60	Moyno ....86
Logan Engineering Co. ....114	Robbins & Co. ....86
Lovejoy Flexible Coupling Co. ....102	Propella ....86
Ludlow Valve Mfg. Co. ....88	Rockwell ....86
Lumenite Electronic Co. ....56	Roots-Comstock Corp. ....86
M	Ross Engine ....86
Marco Company ....80, 81	R-S Products ....86
Marley Company Inc. ....91	Russell & Co. ....86
Marsh Corp., Jas. P. ....70	Sabin Machine Co. ....86
Mason-Neilan Regulator Co. ....59	Safety Camera Lighting ....86
Mayer Corp. ....112	St. Regis ....86
Metal Hydrides Inc. ....46	Sargent & Co. ....86
Michigan Wheel Company ....116	Schaub & Co. ....86
Milburn Company ....127	Schutte & Co. ....86
Milton Roy Company ....7	Schutz-O'Neil ....86
Mine Safety Appliances Co. ....68	Screw Conveyors ....86
Mitchell & Co., W. K. ....72	Seedburo Co. ....86
Mixing Equipment Co. ....12, 13	Seiberling ....86
Monsanto Chemical Co. ....33	Sheldon Co. ....86
Moore Products Co. ....67	Shriver & Co. ....86
Mortell Co., J. W. ....46	Signode Systems ....86
Multiplex Mixers ....120	Simplicity ....86
Mystic Adhesive Products Co. ....48	Sly Mfg. Co. ....86
N	Sparkler Mfg. Co. ....86
National Annealing Box Co. ....94	Sperdy & Co. ....86
National Carbon Co. ....100	Spray Engine ....86
National Drying Machinery Co. ....120	Spraying Machine ....86
National Research Corp. ....87	Sprout, W. ....86
National Starch Products Co. ....51	Square D ....86
National Technical Laboratories ....57	Stearns Machine Co. ....86
Neff & Fry Company ....110	Steel Improver ....86
New England Tank & Tower Co. ....128	Forge Co. ....86
Newark Wire Cloth Co. ....85	Stephens-Alexander ....86
Niacet Chemicals Co. ....32	Stokes Machine Co. ....86
Niagara Blower Co. ....50	Surety Rubber Co. ....86
Nicholson & Co., W. H. ....71	Surface Co. ....86
Northern Engineering Works ....104	Swartwout ....86
Norton Company ....49	Syntroon Co. ....86

Ohmite Mfg. Co. ....69	Taber Instrument Co. ....86
Oliver United Filters Inc. ....10, 11	Taber Pump Co. ....86
Owen Bucket Company ....74	Taylor Instrument Co. ....86
Owens Corning Fiberglas Corp. ....78	Thermo Electric Co. ....86
P	Toledo Scale Co. ....86
Palmer Company ....54	Townmotor Co. ....86
Palo-Myers Inc. ....64	Trent Co. ....86
Pangborn Corp. ....113	Union Bay Co. ....86
Patterson Foundry & Machine Co. ....72	Union Carbide Carbon Co. ....86
Patterson-Kelley Co. ....110	Union Special Co. ....86
Peerless Pump Co. ....26	U. S. Stoneware Co. ....86
Persson Co., T. G. ....49	Universal Rubber Co. ....86
Pfaudler Company ....3	Van Range Co. ....86
Phizer & Co., Chas. ....39	Victor Chemical Co. ....86
Pioneer Rubber Co. ....27	Wakefield Co. ....86
Pittsburgh Plate Glass Co. ....68	Waldron Co. ....86
Porter Co., H. K. ....5	Ward Leonard Co. ....86
Powers Regulator Co. ....56	Weatherhead Co. ....86
Precision Thermometer & Instrument Co. ....54	West Bend Co. ....86
Pressed Steel Tank Co. ....124	West Disinger Co. ....86
Proctor & Schwartz, Inc. ....37	Western Printing Co. ....86
Proportioneer's, Inc. ....2nd Cover	Weston Electric Co. ....86
Prufcoat Laboratories ....43	Wheeler Rubber Co. ....86
Pulverizing Machinery Co. ....132	Whiting Co. ....86
Pure Carbonic, Inc. ....40	Hydroclor Co. ....86
Q	Whiting Co. ....86
Quaker Oats Company ....44	LeVal Filtration Co. ....86
R	Wiegand Co. ....86
Rapids Standard Co. ....95	Wilbur & Co. ....86
Reliance Electric & Engineering Company ....131	Wyandotte Co. ....86
Richmond Mfg. Company ....66	

Ric-Wil Co. ....93	Yale & Towne Co. ....86
Ridge Tool Co. ....91	Yarnall-Walton Co. ....86
Robbins & Co. ....86	
Moyno ....86	
Robbins & Co. ....86	
Propella ....86	
Rockwell ....86	
Roots-Comstock Corp. ....86	
Ross Engine ....86	
R-S Products ....86	
Russell & Co. ....86	
Sabin Machine Co. ....86	
Safety Camera Lighting ....86	
St. Regis ....86	
Sargent & Co. ....86	
Schaub & Co. ....86	
Schutte & Co. ....86	
Schutz-O'Neil ....86	
Screw Conveyors ....86	
Seedburo Co. ....86	
Seiberling ....86	
Sheldon Co. ....86	
Shriver & Co. ....86	
Signode Systems ....86	
Simplicity ....86	
Sly Mfg. Co. ....86	
Sparkler Mfg. Co. ....86	
Sperdy & Co. ....86	
Spray Engine ....86	
Spraying Machine ....86	
Sprout, W. ....86	
Square D ....86	
Stearns Machine Co. ....86	
Steel Improver ....86	
Forge Co. ....86	
Stephens-Alexander ....86	
Stokes Machine Co. ....86	
Surety Rubber Co. ....86	
Surface Co. ....86	
Swartwout ....86	
Syntroon Co. ....86	
Taber Instrument Co. ....86	
Taber Pump Co. ....86	
Taylor Instrument Co. ....86	
Thermo Electric Co. ....86	
Toledo Scale Co. ....86	
Townmotor Co. ....86	
Trent Co. ....86	
Union Bay Co. ....86	
Union Carbide Carbon Co. ....86	
Union Special Co. ....86	
U. S. Stoneware Co. ....86	
Universal Rubber Co. ....86	
Van Range Co. ....86	
Victor Chemical Co. ....86	
Wakefield Co. ....86	
Waldron Co. ....86	
Ward Leonard Co. ....86	
Weatherhead Co. ....86	
West Bend Co. ....86	
West Disinger Co. ....86	
Western Printing Co. ....86	
Weston Electric Co. ....86	
Wheeler Rubber Co. ....86	
Whiting Co. ....86	
Hydroclor Co. ....86	
Whiting Co. ....86	
LeVal Filtration Co. ....86	
Wiegand Co. ....86	
Wilbur & Co. ....86	
Wyandotte Co. ....86	



Ric-Wil Company	.....
Ridge Tool Co.	.....26,
Robbins & Myers, Inc., Moyno Pump Div.	.....
Robbins & Myers, Inc., Propellair Div.	.....
Rockwell Co., W. S.	.....12
Roots-Connersville Blower Corp.	.....109
Ross Engineering Corp., J. O.	.....7
R-S Products Co.	.....9
Russell & Stoll Co.	.....7

S	.....
Sabin Machine Co.	.....6
Safety Car Heating & Lighting Company	.....3
St. Regis Paper Company	.....16, 17
Sargent & Co., E. H.	.....37
Schaub Engineering Co.	.....119
Schutte & Koerting	.....18
Schutz-O'Neill Co.	.....29
Screw Conveyor Corp.	.....50
Seedburo Equipment Co.	.....4
Seibertling Latex Products Co.	.....89
Sheldon Co., E. H.	.....64
Shriver & Co., T.	.....20, 111
Signode Steel Strapping Co.	.....9
Simplicity Engineering Co.	.....102
Sly Mfg. Co., W. W.	.....51
Sparkler Mfg. Co.	.....109
Sperry & Co., D. R.	.....16, 111
Spray Engineering Co.	.....60
Spraying Systems Company	.....7
Sprout, Waldron & Co.	.....102
Square D Company	.....71, 82
Stearns Magnetic Mfg. Co.	.....134
Steel Improvement & Forge Co.	.....15
Stephens-Adamson Mfg. Co.	.....23, 71
Stokes Machine Co., F. J.	.....67
Surety Rubber Co.	.....129
Surface Combustion Corp.	.....70
Swartwout Company	.....104
Syntron Company	.....90

T	.....
Taber Instrument Co.	.....64
Taber Pump Company	.....90
Taylor Instrument Companies	.....51
Thermo Electric Mfg. Co.	.....62
Toledo Scale Company	.....82
Towmotor Corp.	.....26
Trent Co., Harold E.	.....76

U	.....
Union Bay State Chemical Co.	.....49
Union Carbide & Carbon Co.	.....32, 100, 114
Union Special Machine Co.	.....109
U. S. Stoneware Co.	.....129
Universal Road Machinery Co.	.....124

V	.....
Van Range Co., John	.....29
Victor Chemical Works	.....34

W	.....
Wakefield Brass Co.	.....73
Waldron Corp., John	.....77
Ward Leonard Electric Co.	.....70
Weatherhead Co.	.....120
West Bend Equipment Co.	.....40
West Disinfecting Co.	.....44
Western Precipitation Corp.	.....109
Weston Electrical Instrument Co.	.....50
Wheeler Reflector Co.	.....124
Whiting Corp., Hydroclone Div.	.....10
Whiting Corp., LeVal Filter Div.	.....109
Wiegand Co., W. L.	.....131
Wilbur & Williams Co.	.....122
Wyandotte Chemicals Corp.	.....47

Y	.....
Yale & Towne Mfg. Co.	.....90
Yarnall-Waring Co.	.....14, 119

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## "That's Interesting"

### This Combination "Floors" Roaches

Magnesium oxychloride cement flooring containing metallic copper is so disagreeable to roaches that the insects will not remain in areas floored with it. (As reported in Chemical Digest — Foster D. Snell, Inc., Brooklyn 1, N. Y.)

### "Atomic Garlic"

What is aptly termed "Atomic Garlic" has recently been introduced for use by pickle manufacturers and others in the field of food processing. A one ounce bottle contains the flavor equivalent of 3200 ounces of whole garlic. (Magnus, Mabee & Reynard, N. Y. City.)

### Birds Roasted on the Wing

During the war, birds were actually cooked in flight when they swooped into the mouth of a giant radar antenna used to jam enemy search equipment. The powerful beam of high frequency waves stunned and roasted the birds almost instantly. This same energy can be applied to drying foods, curing rubber and facilitating many other process operations. (Westinghouse Electric Corp., Pittsburgh)

### Largest "Salt" Diamond weighs 5,500 Carats

There is a great similarity between precious stones and salt. The largest "salt" diamond in the world was exhibited at the Canner's convention. This huge "gem" of 5,500 carats was mounted in a giant ring. Diamonds vary in impurity from 95% for crude stones to 99.95% for first class grade. Crude Rock salt and fine process salt attain the same degrees of purity. The large salt diamond referred to here had a maximum depth of  $4\frac{1}{2}$  inches. (Diamond Crystal Salt Co.)

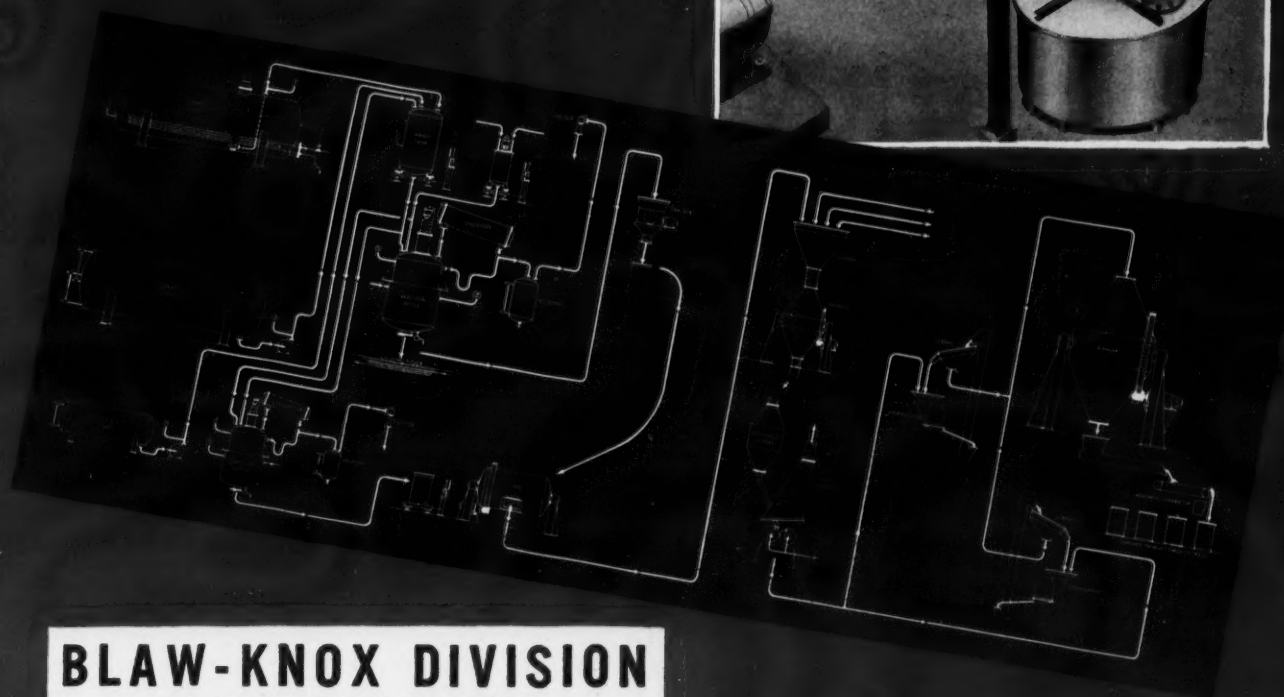
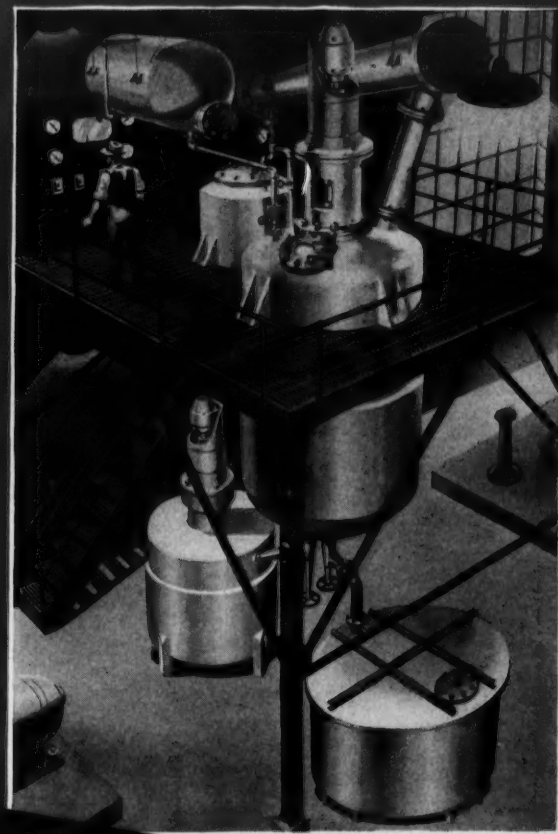
### Process Makes Honey Spread Like Butter Without Dripping

A patented process now in use in many of the larger honey packing plants in the country deals with two separate but interrelated aspects — prevention of fermentation and the control of crystal size when honey forms crystals. The relationship here is that normally honey does not ferment so long as it remains in liquid form but when crystals are formed, that involves an increase in water content of that portion of the honey that is not actually in solid form, under which condition fermentation often occurs. The formation of crystals is stimulated by the addition of some previously processed honey in which the crystals are microscopically minute, after which the seeded honey is placed at the temperature at which crystals form most rapidly, 57° F. Explanation of the selection of the right temperature involves changes in the supersaturation of the dextrose in honey and the changes in viscosity with changes in temperature; the chosen temperature being a nice balance between these two factors modified by temperature. The patent (Number 1,987,803) is assigned to Cornell (University) Research Foundation.

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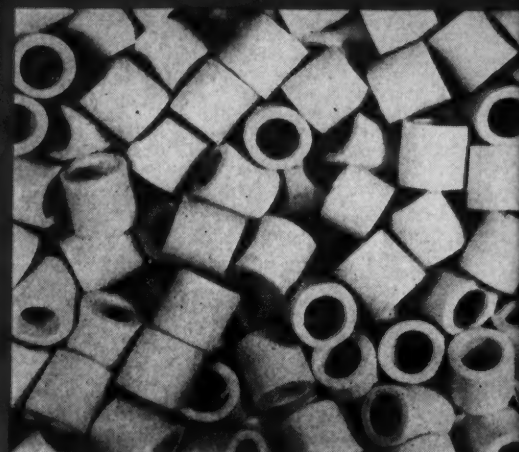


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